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Midnite Meanderings

Bank problems, massive lay-offs, re-organization of management - many things have happened to Commodore in the last six months.

In the beginning there was the savage entrepreneurial drive of Tramiel. It was needed then, when the home computer market wasn't yet realized, and Tramiel pressed his plans for Commodore into action. But as success came, Tramiel went the way of so many other entrepreneurs: he needed his presence felt at all times and at all levels of the company he had so feverishly built. It becomes too big for any one man. Commodore needed the security of the Wall Street financiers and the stock market to keep their place in the market, so Gould had no choice but to move someone else to the helm. Extremities breed extremities and the result was Smith. A quiet, elderly man on the surface, Smith lent stability to a corporation that was run by individuals and transformed it into a corporation run by committees.

Smith was known throughout the corporate community, especially Europe, as a good administrator. In Europe, family and heritage have a profound impact on individuals. With Smith, Commodore had a more reasonable image that the public, and the press, could relate to. No longer were quips being slung. It was tough to find fault with that earnest management regime. But Commodore went from one side of the spectrum to the other. From corporate America: Enter Mr. Ratigan.

With a background in Pepsico, known for the aggressive marketing of its hundred year old product, Mr. Ratigan says it's time for action. It's no coincidence that Commodore chose such an executive. I feel the new management at Commodore will be quiet, conservative and a little more responsive to the tides of the computer market. Rather ironic, as for years Commodore's Public Relations Dept. said that they followed the market (they didn't). We've come full circle again.

Some time ago, I talked about Commodore slimming down middle management and the engineering department. The results should be starting to show as payroll expenses (the biggest cost for any company) fall and returns from long term corporate investments start to show.

When Commodore purchased Amiga, they (potentially?) saved a lot of money that would have otherwise been spent on R&D. Bankers and accountants like that. With this kind of purchase, Commodore planned to recoup their investment much more quickly. Commodore says sales are a sluggish, but I think it's a good investment that will probably pay off in less than two years - even if the Amiga division brings out no more new machines.

Peripherals such as disk drives, printers, mice, monitors, etc., are not made entirely by Commodore and are cheaper to send to the market. In projected quantities, (usually in the range of 5 to 15 thousand units a month) it's more feasible to purchase technology than design it.

The 64-C is a re-packaged C64; nothing else. You can't say a whole lot about it. Public Relations at Commodore says that it positions the C64 with the rest of the Commodore family - namely the Commodore 128 line. That may be true; how they expect to sell a more expensive C64, with the original still available, is beyond me.

The Amiga is an excellent machine, but it will take time for that machine to earn its niche, so Commodore is committed entirely to the C64, C64-C, and C128 for a long time to come - even though Commodore is amazed that the C64 is still selling at a brisk, almost embarrassing, rate. More exciting add-ons will be coming. The '86/'87 selling season that's fast approaching will be filled with ads for all the productivity software and support Commodore's eight-bit machines have. How well a C-128 system will sell - compared to a PC clone - to small businesses is hard to say. Comparative pricing leans to the C-128, but the high powered software for the IBM PC clone market will make it an interesting battle indeed. JO.

Books

SUPERBASE: The BOOK: $15.95 book by Dr. Bruce Hunt. From Precision Books (in the U.S., Progressive Peripherals and Software). 194 pages. Paperback. Indexed.

If you do more than casual filing with Superbase 64/128, you should have this publication. To my knowledge, it is the only book devoted to Superbase.

Superbase, The Book, covers a lot of ground concerning the applications of database programming. The first sections deal with the setup of files and the reasons for doing it one way or another. Automation of things such as sorting, searching, and updating are covered next. Advanced programming techniques within the Superbase language are also covered, showing how specific applications may be developed. In many cases there are examples which show how to do something and, where applicable, the resulting output is also shown. Transferring databases from one disk to another is one area in which I learned a great deal. The only drawback I could find is that the same function is often discussed in several sections of the book, according to its usage and degree of complexity.

The 194 page paperback appears well indexed. It even has a troubleshooting appendix which lists all known bugs in the various versions of Superbase. This also was an eye opener for me - 27 pages covering a great many versions. (Side note: as of 05/86, the latest version of Superbase 64 is 2.03 and upgrades may be obtained from Progressive for a nominal fee and the original disk.) Highly Recommended. Jim Kaminski

COMMODORE 1571 INTERNALS: $19.95 by Rainer Ellinger, from Data Becker GmbH (West Germany) and Abacus Software (USA). 163 pp. text, 325 pp. listings. Paperback. Indexed.

"The essential reference for all 1571 users," claims the front cover of this book...We'll see about that, eh?

This is a pretty large book, so the author decided to give us recommendations as to which sections we might read, based on our past knowledge and experience. This handy little page helps lead the reader directly to those sections most needed to become familiar with the 1571, and perhaps would have been handy in a number of other "Everything you ever wanted to know..." publications.

So, is it really something for everyone? Well, I think it does a good job of covering BASIC commands for disk drives. Almost every beginner will need more examples, but it does provide some extra discussion on each command, and, if you know the name of the command about which you seek information, the index will get you to the correct page quickly. (Indexes should be mandatory in ANY book claiming to be a reference!)

After Chapter One, things start getting complicated; not because of the author, but because all Commodore disk drives offer wide ranging possibilities. Direct access commands are covered in considerable detail (including examples), as are directory and file structure for the C64 and C128 disk formats.

Down and down we go. The next section takes us through the various CP/M formats that the 1571 can handle, and tells us how the bits are stuck to, and retrieved from, the disk in CP/M format mode. From here, we can analyze formats and format disks for the many CP/M drives found out in that "Other CP/M Computer" world. There is enough information here to understand how the 1571 works, if you understand the hardware before you venture down this low. Things you WILL NOT learn from this book are what a 6522 (VIA), 6526 (CIA), and 1770 (disk controller) are or what they can do. You CAN learn how they are used to make a 1571 go 'round.

Of particular interest to me (and the reason I picked up the book in the first place) was specific information about the timing and protocol used by the serial bus in both low- and high-speed data transfer modes. I was disappointed in this one area. Although I have good general knowledge, I found the discussion quite confusing the first three or four times I read it. Next I decided to fall back to the schematic diagrams. Oh, NO! There are no over-all diagrams! Apparently the author assumes you have them from some other source. But wait. Here are some

isolated sections of the logic specific to the serial bus, to help with the explanation. No, they don't help much either. The European logic style of square boxes for every gate, with lines in and out (which is which?), and function indicators like "1" and "=1" do not evoke a logic structure for most American hardware buffs. I feel that these should have been converted to more familiar symbols, at least for the edition of this book available in the U.S.

From logic symbols, we move to the ROM listings - the heart, mind, and soul of the 1571. In this area, this book has the best style I've seen. Each section has comments on (almost) every line, and includes markers for entry points and label targets. Each section includes addresses from which the routine was called, sort of a reverse index, to better understand what the code is trying to do. Also included are notes on the apparent bugs in the code and comments on the way the "Commodore Code Worker's Union" forces code to be written. The parts of the bus protocol I failed to understand from the text were made more clear by the commented code listing. The only things missing were labels like "outbyte" instead of "$8276", although each section does contain a word or two about what it actually does. It's all there, the ROM listings, the zero page useage, and the differences between the 1571 and the (single sided, European) 1570.

Now we come to the final paragraph, and my opinion. You were waiting with bated breath for this, weren't you? This book is an excellent work for those of you who need to know the insides of the 1571 disk drive, and I recommend it highly. At $19.95, I have not seen a more useful compilation of information regarding the 1571 drive. Beginners can use this book as well, in conjunction with Commodore's "1571 User's Guide." (For MUCH more detailed information regarding just how the 1541 and 1571 put the bits on the disk in Commodore format, see "Inside Commodore DOS," by Dr. Richard Immers.) Highly Recommended. Jim Tucker

Educational

Word Shuttle $14.95 word processor for children on disk for the C64. From Commodore Electronic's Limited. DOS protected. 90 day free backup, $5 thereafter.

Word Shuttle is an affordable word processor for children. The program is so simple that if your child can write he can use Word Shuttle, yet it is powerful enough to perform some serious word processing chores.

The major options of this word processor are icon activated, so children have to memorize few keystroke commands to use it. The main menu displays an icon of a keyboard with the word 'WRITE' beside it, a disk drive with the word 'FILE', a printer with 'PRINT', a stop sign for 'STOP', and a large question mark for 'HELP'. To activate any of these options, the child simply moves the cursor, using the cursor keys, until the desired function is highlighted, and presses <RETURN>. If 'WRITE' is selected, the screen will blank and the lower lines will display five new icons. As before, each is activated by moving the cursor until the desired function is selected. The five include options to return to the first menu via 'MENU', to delete a section of text the child selects 'CUT' while 'MOVE' lets the child move a section of text. 'FIND' is used to locate a specific word or phrase, and 'TRASH' dumps all the text so the child can start over with a blank screen.

These options, coupled with the C-64's built-in screen editing tools (insert, delete, overwrite, and cursor controls) allow the child to do some pretty professional word processing. When the child becomes comfortable with those controls, he can use some of the program's more advanced functions (which do require keystroke commands), such as automatically centering text, indenting text, deleting or inserting lines, and dividing their

documents into two, three or four columns of text of equal width.

If the 'FILE' option was selected, the child has access to the disk drive's housekeeping controls. Here he can save, load, or erase files. Although my nine-year-old understands and is comfortable with Word Shuttle, I still worry a little when I know she's using the disk drive options.

The 'PRINT' option lets the child printout their document. Anyone who has ever had trouble getting a printer to work correctly will shudder at the thought of leaving a young child alone with a word processor and a printer. Fear not - Word Shuttle worked with both of my printers (NEC and Star) with no trouble, so if your printer is properly interfaced you should be able to leave the child and the system alone without suffering an anxiety attack. I do suggest you first spend some time checking out the compatibility of your printer before allowing a child to try it solo. After you are sure Word Shuttle and your printer like each other, your child should be able to make any adjustments needed from the 'PRINT' screens icon options unsupervised. The 'PRINT' options include margin setting, print, and return to menu. When the margins are set, the screen will graphically display the effects the change will have on the printout. This graphic display helps the child visualize what his manuscript will look like when it's printed without wasting a lot of paper experimenting.

The 'STOP' option lets the child quit the program and return to BASIC.

The 'HELP' icon supplies detailed information about the use of each option available with Word Shuttle. So anytime your child runs into a problem, all he need do is select the 'MENU' option (available at all times) and select 'HELP'.

Happily, Commodore priced this program to fit into any budget, and if anything ever goes wrong with the original disk you can get a replacement for $5. The 42 page manual is well designed, well illustrated, and easy to understand. The manual, combined with the on screen 'HELP' should meet the needs of any serious student. I suspect some parents who buy it for their children will find it's sufficient for their own word processing needs as well.

Word Shuttle is a nice little word processor. It's intended for use by children, but both they and their parents should be delighted with it. Children can use it to write reports, letters, essays, book reports, homework assignments, etc. The program is complete enough to allow the child to truly process words, but not so complex the child will be overwhelmed. Recommended. Gary Fields

THE VERY FIRST: $... user tutorial on disk for the C128. From Cardco. Unprotected. Shareware notice on disk.

This tutorial can help the true novice overcome some of the fear that comes packaged with a first computer. It is not outstanding in any way, but it is the kind of thing that should be bundled with every new computer. It is a good, very elementary introduction to what a computer is, what the keys do, and some BASIC commands - a reasonable place to start. If you have a copy, and know somebody who just got a C128 as their first computer, give them a copy and encourage them to send a few dollars to the address given in the program. A Spanish version is included on the reverse side of the disk. Tim

Music

Make Music: $9.95 music editor on disk for the C64. From Mastertronics. No warranty, no replacement, no keyboard. DOS protected.

Make Music is an inexpensive basic music creator for the Commodore 64. The program allows the user to write seven pages of music using different notes and rests which can then be played, saved to disk, or dumped to a printer. Make Music is icon driven and can be used by even the youngest. To select an option, the user

simply moves the flashing arrow (using either the cursor keys or a joystick) until it points to the desired feature, and then presses the space bar or the fire button.

The best word to describe Make Music is simple - while it is simple to use, it is also a pretty simple (as in rudimentary) program. It only begins to unleash the power of the C64's Sound Interface Device. The C64 has three beautiful voices, but Make Music lets you hear only one. Its editing controls are primitive and very slow - the only way to change a note is to delete all the notes following it, insert the new note, and reconstruct the music. There is no option to insert notes, duplicate groups of notes or any of the editing tools you would expect in a true music system.

Once the music has been written, it can be played back by selecting one of the program's instruments: trumpet, piano, guitar, recorder or trombone. (You cannot add instruments to this list or redefine a instrument's quality.) Finally, when the music is just the way you want it, you can save it to disk or dump the musical score to a printer. The printout looks like professional sheet music - including musical notations, staffs, rests, etc. The program is designed to work with a Commodore 1525 printer, but I used it with an NEC 8023, using a Xetec interface, and got perfect, hassle free results.

Make Music's manual is about as abbreviated as they come, taking up only ten paragraphs on the back cover of the program's protective case. But because Make Music is so simple to use you really don't need much of a manual to activate its options - you simply point and press - assuming you know enough about music and using your computer to do that. If you know neither, you will feel lost with Make Music since it contains no tutorial or reference cards.

No warranty of any sort is mentioned (Mastertronics doesn't even list their mailing address) so don't expect any after purchase support. But then when a company charges only $10 for a program you have to assume they are trying to make a living on volume sales and can't afford user support. Thus, Mastertronics prices their software like throw-away paper plates.

Unless you simply can't afford a more expensive program, I suggest you save your money for a more professional program like Broderbund's The Music Shop, Activision's The Music Studio or Firebird's The Music System. Not Recommended. Gary Fields

Games

BORROWED TIME: $00.00 Graphic Adventure for C64/Amiga from Activision, Inc., P.O. Box 7286, Mountain View, CA.

After a weak start with Mindshadow, Activision set out to prove they know how to write an adventure game with Borrowed Time. And they have done quite a good job of it.

If you're a fan of Sam Spade you'll love Sam Harlow. He's the same type of down-in-the-heels, anti-hero that Mickey Spillane is such a genius at creating. The opening screen confirms this as you see Sam reclining in his office, feet up on the desk, waiting for his fortune to walk in the door.

In Borrowed Time you have to work on a number of cases simultaneously and solve each of them in the proper order.

Sam's file cabinet is full of interesting files which you should read... and you'll have to figure out which files are important and which aren't. You're going to run into all sorts of disreputable characters as you travel around the neighborhood. You'll need to look in, behind and under almost everything. I can guarantee that your are going to get burned, shot at, and probably hit with a crowbar before you're through; but if you keep moving, you should be safe.

The parser is fairly good, and the puzzles are all fun and have logical conclusions. There are just enough red herrings to make the game interesting without causing frustration, and the endgame is satisfying as well as humorous. This is a very worthwhile addition to any

Adventurer's library. Highly recommended. Art Lewis Kimball

Wizard's Crown: $39.95 role playing/ strategy game for the C64. By Paul Murray and Keith Boors, from Strategic Simulations, Inc. DOS protected. 30 day warranty, $10 replacement thereafter.

This game successfully combines challenge (enough to hold an experienced gamer's attention) with easy to use commands (even first time players can understand and use them). The mixture produces an adventure that both experienced and novice role-players will find delightful.

But before you can begin the adventure, you must waste 45 minutes setting up two file disks. The actual creation of the two disks is painless, but the nuisance of having to create the two disks after paying $40 for the game is inexcusable (but pretty standard operating procedure for SSI).

Fortunately, after the two file disks are created, things get exciting fairly quickly. The movements of the characters are quick and the adventures are many.

Wizard Crown's features are similar to SSI's earlier Phantasie. You create, hire, and arm one to eight adventurers and search for the Emperor's lost Crown. Once the adventurers are organized, the game displays a high quality graphic map of the land of Arghan. You will see symbols depicting swamps, villages, dungeons, etc. The screen also displays the date and time of day (morning, afternoon, night, etc.). It is important to keep track of the time since the gates of the city are locked at night. By moving your band of characters around the screen (using the keyboard) you can enter inns, taverns and dungeons; meet wizards, fight monsters and animals; sell and buy objects; etc. Unlike earlier role-playing games, actual combat can be fought fast (under computer control) or tactically (under your control). When you encounter an enemy, you can either fight or flee. A fight can be resolved quickly by the computer, with only the results reported to the screen, or the battle can be fought in graphic detail with the characters under your control. This allows you to watch each player's action. I suspect designers of other role-play games will copy similar features into their own games.

Wizard's Crown is easy to get addicted to. The options at each turn are always displayed, eliminating much of the frustration which comes from trying to do something which may be legal one time but not the next. For instance: If a character faces an immovable object, the status screen will eliminate that direction from the display. This information greatly increases the game's pleasure level while reducing playing time.

The completion of this adventure should take the average gamer 30 to 60 hours. (If this is your first role-playing game, double that time.) Fortunately, any position in the game can be saved to disk after a battle while you're in an Inn or at camp.

After describing Wizard's Crown many quality features, impressive graphics, interesting story line, friendly commands and overall excellence, you probably expect me to highly recommend it; I don't. The program is over-priced. SSI continues to demand top dollar for their software in a market that is flooded with good programs. A game should cost less than a business program. So while I think Wizard's Crown is an outstanding program, I don't think it's worth $40. Recommended. Gary V. Fields.

Silent Service: $34.95 submarine simulation on disk for the C64. By Sid Meier. From MicroProse. Joystick optional. DOS and password protected. 90 day free replacement, $10 thereafter.

This realistic submarine simulator lets you test your patience, cunning, and luck as you command man and machine in a battle to the death in a World War II tin fish.

Don't confuse Silent Service with a 'shoot-and-sink' arcade game. This is true submarine warfare. The only feature Sid Meier, its designer, left out is water. To succeed, you must understand and master both the submarine's multiple controls and

the tactics involved in submarine warfare - so don't expect to successfully patrol the waters off WW II Japan the first time out of port. Only a skilled skipper can survive those well protected waters.

You move between the six submarine battle stations by joystick or function key. The action in Silent Service is in real-time and amazingly realistic - if you fire four torpedos while looking through the periscope, you will see them and their wake moving toward the target. If you call up the sonar display, you will get a display showing your sub in relation to the targets, and will again see the four torpedos. You can move to the bridge (providing it is above water) and watch the battle in the open air. And, if you wish, you can fire a couple of rounds from the deck gun. The 'Instrument/Gauge' is a bit-map display screen which shows the condition of your sub via dials and bubbles - just like those found on a true WW II submarine.

Silent Service offers three scenarios. The easiest is 'Torpedo/Gun Practice,' a school for would be skippers. You must learn how to dive; surface; issue engine commands; read maps, instruments and bearings; and fire the torpedos and deck gun. This gives you a chance to master your sub before being thrown to the fortunes of war. Happily, these testing grounds are in safe waters. You can train as long as you wish before sailing off to the real war.

The second scenario, 'Convoy Action,' offers six different battles. Each is different, but historically accurate.

In 'Patrol,' you assume command of one of six different submarines. You are free to search any patch of water in the Pacific looking for enemy shipping. In these two scenarios you'll discover how quickly the hunter can become the hunted.

The playing field of Silent Service is huge. When MicroProse says you can patrol the Pacific, they mean all of it.

The graphics would be hard to improve. Each screen is detailed and true to life. The 'damage report' screen shows both the interior and exterior of your submarine. This, too, is a done in minute detail. This screen more closely resembles a book illustration than what you would expect on a monitor. The massive territory is displayed in bit-map detail, so islands look like islands on a map. The coastline of each is detailed and shows harbors and secondary archipelagos.

Battle action can be as short as a few minutes or span hours. Fortunately, Silent Service includes a time speed control so you can quickly get into position. Then you can reset to normal time for battle. The game's one missing feature is the ability to save a game in progress. But all the other features make it the most realistic war simulation I've seen for the Commodore 64. Highly Recommended. Gary V. Fields

BOP'N'WRESTLING: $29.95 arcade game on disk for the C64. From Mindscape. One or two players, joystick or keyboard, DOS protected.

Well, the wait is over! Now you can bring the excitement of professional wrestling (which is MUCH different from college wrestling!) to your CBM home computer. What's this you say? Another sports simulation? Wow Bip Bop Bam ! No Way! You tell me where you can use the infamous Piledriver on your friends and still not sweat. This program is a good simulation of the professsional sport of wrestling. If you've never seen this stuff, turn to USA Network on your cable. From the kicks to the abdomen to the Neckbreaker - intended to soften your opponent - to the REAL gut-wrenching sounds and holds like the Airplane Spin and Body Slams to the devastating Suplex! Don't be satisfied with just pinning your opponent. Drop a few Elbow Drops and stomp him a little for good measure. And, of course, the final move when you have your opponent flat on the mat: the Flying Body Something administered from the top rope of the turnbuckle. (don't forget to talk about all holds.... look them up in manual). The only violence this program lacks is blood and death. Good sound and graphics, Highly recommended. JO.

FRANKIE (Goes to Hollywood): $29.95 adventure/arcade game on disk for the C64. From Firebird. DOS protected, joystick required.

For all you classical music buffs, and those who don't listen to top-40 tunes, Frankie Goes to Hollywood is a British rock band. Their controversial single 'Relax' rocketed to infamous stardom around the world. Well, now they have a graphic computer adventure/arcade game re-released from England with their subtitles. It was voted 'Adventure Game of the Year' by Commodore International Magazine and I agree that it IS one of the best I (and my eleven year old) have played. You start as a shadow of a human and must go through different stages of development and do certain things to get to your final goal - becoming a real person and finding the famous 'Pleasure Dome'. Use of windows (a great feature) allows different things to happen at once: like find a video tape and put it in the VCR and step into another game; or catching posies at a shooting gallery. Nice game, good sound and graphics. Easily in the TOP 50 of the BEST GAMES. A lot of work went into this one. Recommended. JO.

KUNG FU II - Sticks of Death: $29.95 arcade game from UBX. DOS protected, joystick required.

Just when you thought you had seen all the karate programs, another comes along. This is a sequel to Kung Fu, Fists of Death, which is, in my opinion, the best karate game around for C-64. As the first, it offers three different screens, plus some new tools of the trade. Sound effects are what you are used to in these games. If you enjoyed the original, see the sequel. JO

subLOGIC Football: $39.95 arcade game on disk for the C64. From subLOGIC. DOS protected, Joystick required, one or two players.

I love football, especially pro football. And with all the football games on the market for your C64, it's hard to choose. I doubt if you'll arrive at the same solution that I did - I got 'em all.

subLOGIC Football, written by Quest (from Super Bowl Sunday fame), is in my opinion the best of the lot for ease of play, complexity of strategy and statistical correctness.

You can't use any of the football teams you're used to; you create and edit the players on the two teams available: NL and AL All Star teams.

There are three main screens: Scoreboard, Play Option Menu, and a 3-D side line view of the players on the field. Once the ball is in play, all action is left up to you as far as the quarterback (or linebacker if you're on defense) is concerned. All players know their assignments and dutifully comply. When on defense, you can have any or all of your linebackers blitz, keying on a running back (for running plays) or you can choose to defend against a pass with four different formations. On offense, you are offered seven types of running plays with three different formations, five different passing plays with different players as prime receivers and formations.

Younger players will enjoy the joystick action and older players will like the strategy involved. Both are required in this highly competitive game of football. I recommend adding this one to your sports games flip-file. JO.

Wordprocessors

SUPERSCRIPT 64: $49.95 wordprocessor and spelling checker on disk for the C64. By Simon Tranmer and Tom Cranston, from Precision Software. DOS protected (by one read error). Backup: $10. Compatible with Superbase 64.

As an Easy Script user, I was anxious to order this program since it was advertised as a much improved version of Easy Script. Much is similar between the two programs, and ES files easily convert to Superscript files. The program is menu

driven and quite simple to use. A help screen can be accessed by one keystroke. Often used functions can be pre-programmed and menus may be bypassed. Wordwrap and calculator functions have been added. You can add rows, columns, etc., quite easily. A dictionary disk is included and runs much faster than Easy Spell. Easy Spell files are also compatible. The dictionary, though faster than Easy Spell, is a little slow - as are most spelling checkers for the C64. The last menu command may be repeated with one keystroke, a definite time saver. Special function keys may be programmed in the default file, as well as printer definition and interface. The hardest part of using the program is setting up your printer definition if it is not a Commodore printer. I don't think this is necessarily a fault of the program, but rather of the lack of information one receives when purchasing an interface and non-Commodore printer. Mail merge and linked files are supported, as well as the ability to dump a file to disk as a true sequential file. Maximum file size is somewhat smaller than with Easy Script, probably because of the wordwrap - which may be disabled - and because the dictionary is loaded with the main program, unlike Easy Spell which had to be loaded from within Easy Script. I am sure there will be updates to the program at a later date, since this company has updated its Superbase program several times. An excellent program at a reasonable price of $49.95, plus $10 for a backup. The documentation is quite good, but not really necessary if you are experienced with Easy Script. I have not seen the program advertised anywhere but in a direct mailer piece in conjunction with Practicorp. Highly Recommended. Gary Greer.

WORDSHUTTLE: word processor on disk for children. See review under Educational.

RHAPSODY 128 $74.95 integrated database word processor spell checker spreadsheet/ graphics program for C128. From King MicroWare. DOS protected.

Rhapsody 128 is the 128 version of the popular Rhapsody 64 released last year by King Microware. Although the package has been expanded to make use of the C128's larger memory, allowing nearly 54k (as compared to 18k in the C64 version) of resident memory which is instantly available to the four programs, no other improvements have been made to the software.

Rhapsody, being menu-driven, is extremely easy to use. The word processor and spelling checker are straightforward, and, with the excellent tutorial in the manual, can be mastered in a very short time. The dictionary, although limited at first, can be expanded every time you do a new document and will eventually have all the vocabulary you need.

The database is fairly powerful and very easy to master after following the tutorial and examples in the manual. The spreadsheet is one of the most versatile around, being almost unlimited in its configuration. Using the graphics program, you can print tower, scatter, or 3d vertical bar charts of information from the database or spreadsheet.

The manual is an excellent tutorial, although not extremely well-written. It is understandable and the instructions and tutorials are easy to follow. Unfortunately, King Microware decided to save money on editing and printing. The manual could have used editing for spelling errors and composition. They apparently decided to save even MORE money when releasing the C128 version by pasting labels over the existing 64 packaging. The manual is the C64 manual with NO mention of C128 enhancements (if there are any, we couldn't discover them.)

An added 20 pages of addenda to the manual are included in the C128 version. Apparently King was in a hurry to get this package into distribution and either used an incompetent printer or started shrink-wrapping before the printing was dry. The result is a complete mess of transferred ink and smeared labels on the early

packing we saw. If King would use the services of a professional writer/ editor and printer to do their manuals they could have a more professional looking (it is already professional in performance) package here. Recommended. -Art Lewis Kimball

GEOS: $59.95 alternative operating system on disk for the C64. From Berkeley Softworks, in conjunction with CBM. DOS protected. 90 media warranty. Licensed. Joystick, trackball, or mouse controller required.

Well, it is much more than I expected, and much less than it is cracked up to be. GEOS apparently replaces most of the C64's operating system with a bit mapped, graphics oriented operating system and user interface, and rewrites part of the 1541's DOS to make disk access considerably faster.

The new or altered DOS makes the swapping of program overlays and other data, such as typestyle fonts, much more tolerable. The new operating system provides for the creation and printing of text, graphics, or combined text and graphics, showing on screen almost EXACTLY what you will get on paper. Using GEOWRITE, you are able to mix multiple, truly proportionally spaced fonts on the same line of text. The selection of fonts includes five basic typestyles - University, California, Cory (computer), Dwinell (old english), and Roma - with different type sizes for most of them. Also, different enhancements such as bold, outline, and underline can be used with each font. Thus you can start a line off with the tiny 6 point University, switch to a 24 point Roma outline in the middle, and end up with 18 point Dwinell - all on the same line, properly spaced, and looking quite decent.

GEOPaint is a fairly standard full color graphics program at the root, but has the added advantange of being able to use any and all the fonts from GEOWrite along with the graphics. And it is easy! Also, both modules take a page oriented, rather than screen oriented, approach to both text and graphics, so you can get a better idea of the way the text and graphics will print on paper. When working on a graphic, you are working within a window onto a full virtual page. A sprite overlays in icon on the bottom of the screen (in GEOPaint, at the top in GEOWrite) that shows the position of your screen window relative to the virtual page. This makes it relatively easy to know where you are at all times.

A number of printers are directly supported. The quality I get from my MPS 803 is adequate; that from the Legend 880 sharper and darker, but narrower. GEOS assumes that your dot matrix printer prints at a 80 dots per inch in graphics mode. If it is more than 80, the graphics and type will run narrow.

A feature that I have not played with too much is the ability to save clippngs from GEOPaint, then pull them into GEOWrite. I THINK it works, but cannot promise it from experience yet.

The program does not work too well with a mouse, and the joystick could be nicer as well. It currently has only one driver, for the joystick, which allows a mouse but does not take full advantage of it. Berkeley Softworks is supposed to be developing drivers that will make using a mouse nicer, and another to allow the use of light pens. I look forward to these.

The printer drivers are also modularized. I would very much like to see printer drivers for a laser printers and for color printers. Mixing graphics with text on a high quality laser or color printer would make this almost professional.

As near as I can tell, and from everything I have heard, GEOS files are incompatible with everything else on the market. This too bad, as I do not really enjoy the GEOWrite text editor. It is sufficient, but no pleasure. If I could key in my text with another program, and then use GEOS for the fonts and such, it would be all that much nicer.

As it is, GEOS is very nice. For specialty applications where you need a variety of fonts, or to mix text and graphics, GEOS might be worth having. It could be excellent for overhead transparencies. For day to day regular use - forget it. The screen flickers, and disk

access and printing are too slow for heavy use. But it would be hard to beat for speed, ease of use, and versatility for specialized needs - as compared to something like the Newsroom. If you can make good use of it, it is probably worth the $60. But look for a lot of discount offers in the not too distant future. Also, I have heard that it has been used with a RAM expansion, from Commodore, which would greatly increase speed, and that a version is coming out for the C128. While it is not the revolution that everybody is talking about, it is quite good and professionally done. Recommended. Tim

WORDPRO 64S and 128S: [still another update: issues 20, 22,.. et. al.] $50 & $80 respectively.

Really not much different from the previous versions, but these updates feature a fully integrated spelling checker that is quite easy to use and fairly fast. The spelling checker is resident, and the 540 disk block dictionary comes on the same disk. New words are added to a user dictionary when done with the checking. If you tell the spelling checker to 'add' a word to the user dictionary, and it occurs later in th same run, it will still be flagged as a possible misspelling. A nice added touch to an already good word processor. Also, the copy protection has been removed. THANK YOU! ProLine. Finally, it now has a printer module to drive an HP Laserjet printer. Still a very nice, very powerful wordprocessor, but with all the others available, and new ones coming out, it has some catching up to do in the areas of available text space, columns, etc. Excellent for form letters and for the spelling checker. Recommended. Tim

CMS GENERAL ACCOUNTING SYSTEM: $150 general ledger, accounts recievable, billing, job costing, accounts payable, and payroll programs on double sided disks for the C128 and 1571 disk drive. Also available on single sided disks for 1541/4040 & compatibles. By Chuck Stewart, from CMS Software. Full range of supporting pre-printed forms available. Not Protected. No statement of warranty.

This is a comprehensive general accounting system professionally done. The several programs, written in BASIC 7.0, come on four double sided disks, with a fifth disk of working examples provided. The whole system is relatively easy to use with each module able to stand alone or integrate fully with the general ledger. When integrated, the program provides a fully detailed audit trail. It is hard to review a product like this without actually using it within a business for several months; after spending several days with it I am impressed. If anybody is using this product, PLEASE write us a full review - it deserves it. If you are looking for a general accounting system for the C128, I highly recommend you take a close look at this one. Tim

FLEX FILE 128: $49.95 database management program on disk for the C128. By Donald Woods, from Woodsoftware. 90 day media warranty. Unprotected. Telephone support provided upon registration.

This is a VERY nice random access file database. It is easy to use, relatively powerful, and fast. Written in BASIC and compiled for the C128, Flex File is designed for variable length fields, fixed length record databases on any Commodore compatible disk drive. It claims to hold up to 3800 records on a 1541, 8000 records on a 1571, or 10,000 records on an SFD, 8050, or 8250. I ran into some kind of trouble with either the program or the drive when I created a database with 3 keys and 254 character records on my 1571. The program is supposed to provide for 1100 such records; I tried creating the database several times, but it would invariably crash with an 'Out of Memory' error when I tried to access the database. Working with smaller files was fast and easy...at least for the simple functions. It has several options within the report writer module for mathematical functions, highly selective sorts, etc.

A particularly nice feature is the

program's ability to change key fields after the database has been constructed. This can get you out of countless binds. It gives a full range of disk entry and output options to allow importing data from or exporting data to any of a number of other database programs, word processors, and spreadsheets via sequential files. Keyboard data entry is painless, with either immediate or batch mode entry. If adding several records with numerous fields, the batch mode makes it easier by waiting to do the actual merge of data until you are done or memory is full.

I did notice, however, that some of the defaults worked rather oddly, using your last response as the default value when constructing formats. This looks more like an oversight than a major bug or troublemaker. A small point where the polish is missing.

All in all, it is a very nice, powerful, but not yet perfect database management system for the C128 - still having trouble with the overlarge files. There will be more and more of these programs appearing on the market, but this one has a head start, and probably has most of the inevitable, invisible, bugs worked out by now. Recommended. Tim

Disk Utilities

DISKETTE FILE COPY: $25 copy program on disk for the C64 and 1541. From Layton Berry Software. Not protected, no warranty.

I recieved a neat little program in the mail, unsolicited, that is the answer to a problem I had been having from some time...how to copy relative files from my home accounting program, the Complete Personal Accountant by Futurehouse.

Diskette File Copy, DFC, bills itself as a "file transfer program", not a disk copying program. You can transfer REL, PRG, SEQ, and USR files easily without a lengthy learning period. The program displays the name of the file being transferred and shows a graph of the blocks remaining to be read or written.

The program is written in machine language. You load a directory, press <RETURN> on the files you don't want to transfer, and follow the screen prompts. That's it.

There are some additional handy features. You can dump the file to the screen or the printer in BASIC code, screen code, or ASCII. You can send disk commands directly from this program, and LOCK or UNLOCK files easily.

The program will work with a single disk drive, two disk drives hooked up serially, or a dual disk drive such as the MSD SD2. It has options to set up many different hardware configurations such as non-Commodore printers, RS 232, etc.

I tested this program using FLASH! and had no problems, but for this reason did not bother to time the operations.

The program uses as much of the C64's memory as possible, reducing the number of disk swaps when only one disk drive is used. The program does not copy blocks that are not in the BAM.

This program does what it says it will do. It's easy to use. You can order it with hard copy documentation, or print out the documentation that comes on the disk. There are also several pages of help screens. I was a little annoyed that I could not escape from the help screens without quickly paging through them all, but this is a minor matter.

There are several idiot checks and you can change your mind easily before doing any damage.

There was one feature I especially liked: You can try the program before you buy it. It works on the 'shareware' or what I call the honor system. If you like it, the author asks that you send him $25. I thought that that was a little bit much. The shareware system on this program allows you to make up to five copies for your friends to try out at a maximum charge of $5 which your friends pay to you for your materials. Then, if they like it, they send the author their money. After you send the author $25, you are registered. You can make archival copies for your own use.

I hope to see more software you can

try before you buy. Highly Recommended. Gary Edwaards.

SNAPSHOT 64: $50 memory dump copier on cartridge for the C64. By Marcel LeBlanc and Ron Smith.

This cartridge based program can stop a running program and allow it to be archived. This allows the program to run without using your original copy-protected disk.

Upon powerup there is no effect on the C64. The Snapshot cartridge button is pressed, blanking the screen, and the F3 key is pressed to 'clear' memory. The screen is returned to normal and the word CLEARED appears. The copy protected program is then loaded and run per normal instructions. At some point when the screen is stable and drive operations have stopped, the Snapshot button is pressed again to blank the screen. Pressing F1 causes the C64's memory to be copied onto a disk in chunks. Snapshot will request a two letter prefix for the chunks and a name for the boot program (up to 16 characters). The files are labeled and the process is over. It's that simple!

There are two other features in Snapshot. The first is the ability to format a disk just prior to saving the chunks of memory without having to reload the protected program. The second feature is to be able to examine parts of memory once the program is frozen by Snapshot. Both are nice touches but not normally required.

The resulting Snapshot disk files are loaded by the boot program automatically with the screen indicating that 'filename' was archived by Snapshot 64. After all files are loaded, the C64 is restored to the exact display and status as when the Snapshot button was pressed.

The files produced by Snapshot are compatible with ANY drive and most fast load cartridges. The Snapshot cartridge is not needed to run any program that it has saved. Isepic has a fast load routine built into its boot which makes its files very drive specific. Capture may also be drive specific because when it saves onto disk, some sort of directory copy protection is used. Therefore, I believe that only programs archived with Snapshot will work consistently with the SFD-1001 or other disk drives. Without the use of a fast load cartridge, the program will probably require as much time to load as the original protected version. Also, it does not seem that the archived program requires any additional disk space.

I purchased Snapshot because it seemed more flexible than the other products. I have been satisfied and have successfully transferred copy protected programs such as Multiplan and Superbase to my SFD-1001 drive. Highly Recommended. Jim Kaminski

Graphics

GRAPHICS DISK AND MORE!: $16.95 Graphics Utility Disk for Print Shop from RJ Softshop.

Graphics Disk and More contains approximately 75 graphic symbols with no particular theme. The enclosed booklet contains 47 sample verses for use on greeting cards, with suggestions for graphics that might be appropriate and a listing of graphics available on the flippy disk.

The package includes a handy overlay on which you can draw or trace a new graphic, then place on your monitor to help in designing your own graphic on the screen. The overlay is reusable and the author claims to have used his over 40 times.

There is also a handy copy-fitting chart which will tell you approximately how many words can fit on a layout in various type styles.

All the graphics loaded properly and worked well with Print Shop. A good value for the money. Recommended. Art Lewis Kimball

THEME GRAPHICS DISK! $14.95 graphics library disk for Print Shop from RJ Softshop.

Theme Graphics Disk is another in a series of clip art disks from RJ Softshop for use with various graphics programs. This disk contains over 150 logos, trademarks, military insignia, and other graphics for use in creating newsletters, cards, and advertisements.

The disk includes "logo fixin's" which are stock graphics which can be used as a base to create your own custom logo for stationery etc. The graphics are fairly good and there was no problem loading and using these graphics with Print Shop.

At the price this is a very worthwhile program to have if you do much work with graphics and Print Shop. Recommended. Art Lewis Kimball.

HIGH RESOLUTION GRAPHICS: $19.95 Graphics Utility Disk for Print Shop from RJ Softshop

High Resolution Graphics contains over 40 hi-res graphics for use with The Print Shop. There is also a selection of borders and graphic symbols for use in making mewsletters, greeting cards, etc.

The graphics are of extremely good quality, although possibly not graphics that you would use very often for your Print Shop creations. If you need the types of graphics included on the disk, this will save you a lot of time creating them.

Probably slightly over-priced for the number of graphics included on the disk. Average. Art Lewis Kimball.

Telecommunications

AVATEX 1200 MODEM $79.95 300/1200 Baud Hayes Compatible Modem for C64/C128. Made in Hong Kong and available through various US distributors.

The Avatex 1200 modem is showing up in more and more ads and is becoming a very popular 1200 baud modem for Commodore users. It is nominally Hayes compatible. (It uses Hayes protocol, but like most so-called Hayes clones, accepts very few of the sophisticated Hayes on-line commands.) It comes with a three foot cable with RS 232 connectors on both ends, thus requiring an interface to connect to the C64 or C128. It is Bell 212A compatible and operates in half and full duplex asynchronous modes.

The Avatex is packaged in an attractive low-profile cream colored case which is practically identical to the color of the C128.

Indicator lights on the front panel show Power On, Terminal Ready, Send Data, Receive Data, High Speed Indicator, Modem Ready, Test Mode, and Ring Indicator. Besides the convenient front-panel power switch, there is a voice/data switch to prevent the modem from answering the phone when it is on but not being used, and a 300/1200 baud switch which must be changed for 300 or 1200 baud communications.

The telephone line connection is permanently attached to the modem and has an eight foot cord. Also on the back panel is a plug for the telephone, a 12-volt adapter plug (the 12-VDC power supply is included). RS232 connector, and eight dip switches.

Those familiar with the Hayes Modem will be fooled by the dip switches. Only four of them have to do with communications; the other four are for self-testing the modem, although the very brief documentation doesn't explain the self-testing feature. We understand a new manual is being written which will be more comprehensive than the one we've seen.

The RS 232 connector has the standard pinouts, but does not support pin 12 which is needed by the Commodore to detect High Speed Carrier. In a month of testing on various BBSs and on-line services, the Avatex performed dependably and with no problems. Although it can't be used without some modifications to answer a bulletin board, I liked it well enough to buy one for my own use. Aside from not supporting some of the Hayes commands, the only other negative feature is the lack of a speaker, a minor inconvenience.

The Avatex is sold under various other names, including QMI ST TALK and is sold for as high as $149.95; it can be had for as little as $79.95 by checking the magazines. Recommended. -Art Lewis Kimball

BOBSTERM PRO 128: $79.95 terminal program for C128 by Bob Lentini from Progressive Peripherals. Dongle protected.

It is obvious that a LOT of research went into producing Bobsterm. It's hard to believe that there is any feature needed in a terminal program that isn't present in this one!

The C128 version has all the features that the C64 version had, plus a few enhancements to take advantage of the power of the C128.

Besides Punter Protocol, both versions support Regular XModem and CRC, and CompuServe's B protocol. VT-100 and VT-52, plus ADM-31 terminal emulation, are supported with scrolling and full screen editing. A 60K buffer, with editor, is provided for messages, uploads, and downloads, and the line length can be adjusted for various systems.

Baud rates from 50 to 2400 are supported. An entire disk can be transferred from Commodore to Commodore without intervention. Most conversions can be done from within the program such as Program to Sequential, Sequential to Program, Program to ASCII, etc. Unlimited phone book storage with auto-logon macros, auto redial, real time clock and time-on-line stopwatch, and 37 programmable function keys is provided.

Bobsterm can be set to work with virtually any drive configuration including MSD Dual and SFD1001 (with Buscard). Six different character sets are available.

The manual is well written and logical in layout. Without a good manual this program would probably be overwhelming, but this manual covers everything and makes it easy to find. There is even an appendix section with instructions on how to modify the older 1660s to have carrier detect.

Although I personally like a short, simple terminal program to do what I need, if I were going to buy a commercial package this is the only one I'd need! Highly recommended. -Art Lewis Kimball

BOB'S TERM PRO 128: as above.

An extra feature, not noted in the above review, is Bob's Term's ability to properly handle double sided CP/M disks. Using this feature in conjunction with the capture buffer, I was able to download a CP/M .COM file from our local Punter board, using Punter protocol, and save it from the buffer to a CP/M disk. The fool thing ran! There are numerous other features, options, and controls. I can see why this program won a ribbon at CES in Chicago. Highly Recommended. Tim

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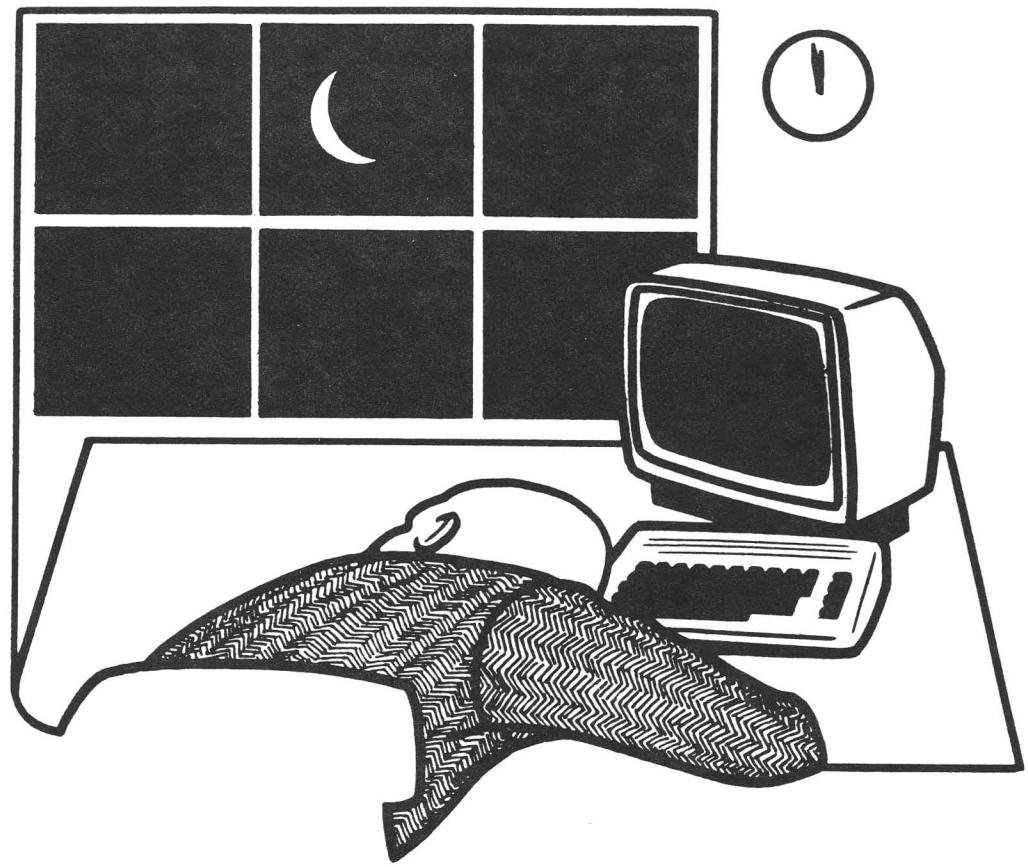

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Most publishers invite reader's questions and comments, hoping to broaden the services that their magazine provides. We have been a little negligent in this area. So let it be known that we do invite your questions regarding Commodore machines. To get things started, I have collected questions, and the collective wisdom, of the local user's group and reprinted them here. If you have questions regarding your system, please write it down and send it to us. We will try to answer it both here and in a return letter. Tim

Is there anything that can be done to make the <RUN/STOP> <RESTORE> operation work without beating the keyboard to death? (I have tried spraying the <RESTORE> key with tuner cleaner to no avail.)

Not really, short of reconstructing the keyboard. Commodore intentionally made the <RESTORE> key on the VIC and the C64 such that it requires a good sharp, quick tap to do anything. The reasoning behind this, apparently, is that hitting the <RESTORE> key actually, momentarily, stops the very heart of the computer, the 6510, and makes it check to see if the <RUN/STOP> key is depressed. If the <RUN/STOP> key is depressed, then a BASIC program will stop, regardless of what it was doing, while a machine language program will BREAK or go off to never never land. Having it require such a sharp tap, though, is really unnecessary, as hitting it without another key held down (usually) does absolutely nothing. If you are really intent on a softer <RESET> key, you could rewire it to the same kind of momentary on (spring) pushbutton switch such as are popular as reset switches. I don't advise it though, and doing so would certainly void your warranty. The <RESTORE> key on the C128 is hooked up differently, and requires no more than a normal keystroke.

Is 'RESET' the same as power on?

No, it is not quite the same. There are a number of differences, but the main one that makes it different, for most practical purposes, is that it does not completely clear out Random Access Memory (RAM). For example, if you load a machine language utility that resides above BASIC ROM at $C000 (decimal 49152) on the C64, use it, and press the reset button, the utility is still there and can be restarted by SYSing to 49152. A lot of memory remains unchanged when you use the 'RESET' button. If you turn the computer off, that utility, and everything else, will be gone.

What's a reset switch for?

A reset switch tells the computer to stop what it is doing and clean itself up a bit. It is NOT the same as turning it off and then back on, but close. It takes care of a lot of hangups, can get you out of a bind, and lose a lot of data for you. Use with caution. The vast majority of memory is left alone by a reset button, allowing the use of unNEW utilities and the reactivation of machine language programs.

Can I hurt the computer by holding down the 'RESET' button?

Not easily. The 'RESET' button just changes the voltage on one line to the main chips. When it changes back again, it goes through the same general routine that it did when the computer was powered up. What the 'RESET' button does is tell the CPU that it is turned off while the rest of the computer is still on. With no instructions from the CPU, the rest of the computer just sits there, waiting for instructions. Actually, there is a risk of some kind of damage if you hold the reset button down for a long, LONG, time every day over a period of years; holding it

down for several seconds should not cause any great problems.

Can I reset my computer without removing a disk from the drive?

Certainly.

Can the computer be turned on and off with a disk in the drive?

Yes. In fact, the drive must be powered on, the disk inserted, and then the computer turned on in order to activate the autoboot feature of the C128. The only signal that is sent over the serial bus during the actual powering on or off of the computer is on the Reset line. This does not affect the voltage to the read/write head of the drive and so should pose no danger to a disk.

However, it is risky to turn the power to the drive on and off with a disk inserted, as when you do this, the voltages throughout the drive can fluctuate considerably, possibly affecting the magnetic media of the disk and thus corrupting it. I understand that the biggest threat is in turning it off, when the inherent magnetic fields collapse.

What is the proper sequence to turn on the components of my computer system?

Whatever works. Often, it doesn't seem to matter; sometimes it does. Here in the office we have a C64 hooked up to a 4040 dual drive and an 8023P printer, via a Handic Superbox. Both peripherals must be turned on before the computer, or the IEEE bus gets screwed up and we can't do anything. At home, I have a C128, two 1571's, an MPS 803, and a CBM DPS 1101 all hooked together. I MUST turn on the DPS last in order to get a cursor in C128 mode. The really odd one is my C128 setup at work: C128, two 1571s, and (to make it really tricky) a Xetec Supergraphix that feeds into an Omnitronix 256K RAMJet printer buffer connected to a Fortis/Dynax DX 15. Well, I usually turn on the computer last, and everything works just fine. But I can't print. So I have to go back, turn off the printer, turn off the printer buffer, turn on the buffer, and turn on the printer. Everything's fine. So, again, whatever works.

Should I unplug a computer during an storm? Modem?

Yes. At least if it is a thunderstorm and there is a chance of lightning striking within a few blocks of your computer setup. Nowhere in your computer is a circuit that runs on more than 12 volts, and most of them run at 5VDC. A couple hundred volts from the 100,000 volt lightning bolt that hit down the street may make it through just about all the protection you stack up and can quickly kill your computer. If the lightning bolt hits the powerline right outside your house a fire extinguisher might be handy. The same holds true for modems.

I have only seen one computer that has been fried by lightning, Mike Stout's. Since then, I unplug my computer whenever there is the slightest chance of a lightning surge.

Do spike arrestors do any good? Are they necessary?

Yes and no. They can definitely help save your computer from a minor spike. They are seldom called upon to do their duty, but can be well worth the price if they ever do save your computer. They are not necessary if you are confident that you have a clean power line - no big air conditioners or the like - and you take the precaution of unplugging your system when not in use.

What's the best source of disks?

That depends. The best source I have found is user's groups. The local user's group buys disks by the thousand, boxed, with sleeves and labels, and sells them by the box of ten. They use it as a fund raiser, and so ask a nominal contribution above the bulk cost, but still manage to sell a box of 10 single sided double density disks for $9 and double sided double density disks for $10. And these are high quality disks. Thousands sold, and I think there MIGHT have been one bad one. If you don't belong to a user's group, consider joining. If that is not practical, consider going in with a few friends to buy bulk disks. Outside of that, ask around and shop around.

How can a modem help you in writing scientific programs when much available is in IBM language?

It probably cannot, unless you know A programmer, with a modem, who writes such programs in a transportable language. The problem is that any executable program is necessarily specific to the operating system of the computer that it runs on. Even though the pre-ST Ataris, the pre-Amiga Commodores, and the pre-MacIntosh Apples all used very similar CPUs, a program that runs on one would not run on the others. Each has a very different operating system. The operating system is the resident set of instructions that tells the computer how to handle such things as the keyboard, the screen, and anything else you might attach to it. To complicate matters, even though all these computers use the same main microchip as a CPU, they all talk different languages.

An IBM machine bears almost no resemblance to your Commodore. A program written for one machine will not run on the other. There is, however, a convoluted way around this.

Programmers often write their programs in a high level compiled language. This means that, in contrast to the way BASIC works on the Commodore where you can simply type a program in and RUN it, the program is written as a 'source' file using something similar to a word processor. Once the program is written, it is 'compiled' into object code which is either machine language or something very close to it. The source code is often very close to regular text. So, using a modem, you might be able to transfer the source code from an IBM computer to your Commodore.

This does not solve all your problems though. You will have to have a compiler for the language of the source code, and you will have to know how to work it. I can almost promise you that even once you get this far your troubles are nowhere near over. It is almost certain that several of the procedures will have been written with the original machine in mind. This is especially true for some of the input/output, file handling, and screen displays. You will have to find and modify all of this to work on your machine.

Thus, the whole process, while possible, can be rather cumbersome. If all you are looking for is some routines, and you already know a language such as Pascal or C, it might be worth it to search them out or to buy a book of algorithms. But I really doubt that you would be able to find very much that would be worth the time and the effort to transfer via modem.

What's a modem?

Magic. MODulator/DEModulator. A computer speaks digital - one or zero - and telephone lines speak analog - everything but a simple one or zero. To use a telephone line to talk to other computers, you have to convert the signal you are sending from digital to analog - modulate the signal - and then the computer at the other end must convert it back from analog to digital - demodulate.

Simple, right?

What's the difference between BASIC and Machine Language?

A computer only understands binary, that is, ones and zeroes. Communicating with the computer in its own binary language would be rather difficult. To make it easier for people to use, computers come with some kind of user interface which is, however hostile, somewhat more friendly than the computer's own language.

All programs, also, eventually end up as the ones and zeroes of binary. To make it easier for himself, the programmer uses a program to program the computer. BASIC is just a program that is permanently stored in Read Only Memory (ROM) and comes with your computer.

The program, BASIC, is an interpreter for the machine. It allows you to use a certain set of instructions, and, when told to RUN, it interprets these instructions into the ones and zeroes that the computer understands.

Machine language, on the other hand, is ones and zeros. When you program in machine language, you use shorthand forms of binary - assembler and hexadecimal - to enter the appropriate ones and zeroes into the computer's memory. When told to execute these commands, there is no need for time consuming interpretation.

What does an asterisk (*) on a directory mean?

An asterisk which shows up before the file type in a directory listing indicates that the file is not properly closed. This file, known as a splat file, can be created by SAVEing a program and, before it is completely SAVEd, opening the drive door or hitting <RUN/STOP> <RESTORE>. (If you must try this, be sure to use scratch - worthless - disk.)

A splat file indicates that the directory of a disk is corrupted. When a disk has a splat file, it is unsafe to save any files to that disk, as the drive can confuse the files and you can lose data. To straighten out the directory, you must validate the disk with the "v0:" command in BASIC 2.0 or COLLECT in BASIC 3.5 or above.

If the data in the splat file MUST be saved, it can sometimes be done with a little known option of the Commodore DOS. For a sequential file, write a short program to OPEN 2,8,2,"filename,s,m" and then GET the data. If you have two disk drives, it can be easily PRINT#ed to another disk. Otherwise, PRINT# it to a printer, where you will at least have the data.

If the splat file is a program file or an oddball user file, it is more difficult, but follows the same principle. Such a program is beyond the scope of this column, but we will try to print a utility for this soon.

What is a wildcard?

A wildcard is a particular, peculiar character that can be used in place of any single character or a number of characters. Wildcards are usually used in disk drive operations. Most computers recognize two wildcards: The '?' which is used to designate any single character and the '*' which is used to designate a range of characters. For example, you can get a partial directory of disk contents by using wildcards. Here at Midnite, I use prefixes for the different files that I keep on disk. Reviews have the prefix 'r.', articles have the prefix 'a.', Baker's programs have the prefix 'p.'. Then, when I want to work on the reviews, I get a selective directory with a command like

```
@$r.*
```

or, more specifically, from within WordPro, I

```
<F3>0 r.*
```

and, in Paperback Writer, I

<logo> 0 r.*

In the examples above, I used the '*' wildcard to tell the drive to show me all the files that start with 'r.', without regard to the number of characters in the filename. In contrast to this, I could use the '?' mark wild card to show me all the filenames with a certain number of characters, like

@$?

which would show me all the filenames that have exactly one character.

There are a number of other rarely used options available on Commodore systems. A neat one, rarely used, almost never documented, is the volume identifier function of the C64 DOS Wedge. This option puts a character in the sixteenth position of the filename and can be used for selective directories.

To use this option, use the DOS Wedge to save a program with

<backarrow>filename[x]

When you list the directory, you will see the character 'x' in the 16th character position. You can use this character when pattern matching with the wedge by

@$0:*[x]

At present, I don't know of any similar option with the C128. But a feature like this can be helpful when you have several files or groups of files on a disk.

Another nice, seldom used option is listing a directory file by type. This is done from within the wedge by a command like

@$0:*=p

which will show all the files of a selected type, in this case, PRG files. All these wildcard options can be stacked up for a command like

@$0:?s*[x]=p

which will give you a directory of all the program files on disk which were saved with the DOS Wedge using the Volume Identifier option, and have an 's' as their second character. But why bother.

What is a file extension?

There ain't no such beast. At least, not exactly. File extension is a term that is carried over from other systems such as CP/M and MS DOS. In these operating systems, disk file names can be, and almost always are, given a three character filename extension. This filename extension is considered separately from the main filename by the operating system. This allows for using the filename extensions to designate certain filetypes and to call selective directories. For example, in CP/M Plus on the C128, a program that the system is to run must have the extension .COM for the system to recognize it. You can execute an entire sequence of commands by using the SUBMIT function, as long as the commands are stored in a file that has the extension .SUB.

Also, you can use the filename extension to get selective directories. If you are looking for all the executable program files on a CP/M disk you can enter

dir *.com

or for text files, which conventionally have .TXT as there extension, you can ask for

dir *.txt

The beauty of such filename extensions is that the extensions are really distinct from the primary part of the filename, so you have a file name with two parts, thus gaining greater control.

Most Commodore machines do not directly support such a facility, although a case could be made that the filetype designations, e.g. PRG, SEQ, REL, and USR do something similar. They do, kind of. There are only four accessible filetypes, and the user usually does not have much control over them, with the exception of USR and SEQ. The Volume Identifier of the DOS Wedge, above, also provides a similar

type function.

Although there is no real support for filename extension on the Commodore systems, you really do see a lot of them. For example, most Sidplayer files have a .MUS extension which the Sidplayer program looks for. This is a special case where the programmer had to go to some length to make find the extension. It makes more sense to me to use a prefix, like the 'r.*' and the 'a.*' I discussed with respect to wildcards, above. Doodle uses a 'dd' prefix for all its picture files. So, while there is no true filename extension as used in CP/M or MS DOS, their is a variety of ways to emulate it.

Is the "SAVE with REPLACE" bug real? What is it?

Yes. This bug can invisibly corrupt a disk and its directory when you save a program that already exists on the disk by using the 'SAVE"@filename"' command. The mere existence of this bug was not widely accepted until sometime last year. There are various theories about its cause, but I don't know that an authoritative explanation has yet come out.

I have never personally encountered this bug, even though I perform the 'SAVE"@' operation several times a day with both program and text files. I have heard that the reason for my good fortune might be because I always specify the drive number (0 or 1) when I use the command, even on 1541 and 1571 single disk drives, and I always wait until the drive activity light (red on a 1541, green on a 1571) goes out before doing another activity. The reasoning behind this theory is that Commodore's single disk drives are true descendents of their dual 4040 drive. The single drives DOSs are simply patches of the 4040 DOS. The 4040 has an additional chip that mediated options such as the 'SAVE"@' function, a chip which the single drives lack. Thus, unless you are very specific and very careful in activating the 'SAVE"@' function, the single drive gets confused and corrupts the disk. At least, that is one theory. Other theories abound. For a more complete discussion, I recommend reading Phillip A. Slaymaker's articles in the September '86 **Transactor** and **Compute!**'s October and November 1985 issues.

What is the best diskette?

The VERY best? Who can say? And for what drive? I personally am fond of Dysans, DataMags, and Maxells; the resident expert here suggests staying away from Verbatim, Elephants, and Kodaks. We have not done any sort of extensive testing. A comprehensive test of all the good disks available would take years. Another, visiting, expert suggested that a lot of it is superstition. When asked to elucidate, he said that there are a number of high quality disks available, but it is not worth the time and trouble to try them all out. Simply find a reputable disk at a reasonable price and, if you have no problems with it, keep using that brand. Plan on spending a minimum of one dollar apiece, rock bottom discount for single sided double density, up to $3.50 apiece, discounted double sided double density. Ask around, ask a user's group. Beware of the incredibly low prices at discount stores as they are often worth almost what you pay for them. On the other hand, there may be a local computer store that sells bulk no-label generics that are top quality. These can be, if made by a good manufacturer, an excellent buy. Inside information on the retailer's supplier of the generics would be very helpful.

What does "validating" a disk do?

A drive does a lot of work keeping track of where everything is at, where to get things from, and where to put things. Occasionally it screws up, usually because the user screwed up. Specifically, it might say that you have more or, more

likely, fewer blocks available on your disk than the correct number available. Or you might have created a splat file. To take care of problems like these you need to validate the disk with the 'v0:' BASIC 2.0 command or the BASIC 3.5+ 'COLLECT' command. What this does is look at every file on disk from the beginning to the end and then rewrites the map (BAM) of where everything is at. Do it occasionally to disks that you 'SAVE"@' on, just for grins. But you should NEVER do it to a disk that uses Random Access files. Remember that Random Access files are different from RELative files. RELative files are fully supported by the drive's DOS and will not be lost by validating the disk. Random Access files are created and accessed through the Direct Access commands. If such files show up in the BAM at all it is because the programmer told it to. If you validate a disk with Random Access files, and then later save anything to that disk, chances are you just screwed up everything and good luck getting it back.

What's the difference between DIRECTORY and CATALOG?

None. These are BASIC 3.5+ commands that do exactly the same thing: passively list a directory to screen without loading the directory into memory (in contrast to the LOAD"$",8 which screws up BASIC programs). The DIRECTORY command does essentially the same thing as the '@$' from the DOS Wedge, and supports the same kind of selective directories, excepting the Volume Identifier. The ONLY difference I have found is that the abbreviation for 'CATALOG' (cA) is one character shorter than the abbreviation for 'DIRECTORY' (diR).

What's the best magazine?

Byte, Transactor, Midnite, in that order.

Editor's Aerie

Tim Sickbert

A number of software houses are removing the DOS protection from the newest revisions of their commercial releases. Among these are Batteries Included, which has long had a policy of no protection, Progressive Peripherals, which is moving to dongle protection; Pro-Line Software, which has added integrated spelling checkers to WordPro 64 and WordPro 128, in addtion to removing DOS protection from the program disks.

This removal of the DOS protection has many advantages. Right now, I have several of the programs I use most often all on one disk. WordPro 128/S, along with the dictionary, Bob's Term Pro 128, with the defaults, Gnome Kit, Uni-Copy, a couple of PD term programs, various other utilities and notes...all of it fits on on double sided 1571 disk! This makes it so much easier to move from one program to another - leaving my program disk in device 8 and just swapping data disks in device 9. It also opens up the door to the use of 4040, SFD, 8050, or hard drive systems. Thank you to all the software houses that do not use, or have stopped using, DOS protection.

On the flip side: DON'T ABUSE IT!!!! The battle against copy protection has been long and hard. Untold dollars have been spent on DOS protection, always coming out of the user's pockets. All the lost time, all the lost data. DOS protection is a BIG problem. Now that something is finally being done about it, don't ruin it for all of us by stealing software. Pay for the software you want! To be honest, I don't mind if you get a copy of a program from a friend just to look at it, but if you end up using it, at the very least, send some money to the publisher or the author of the software!

If you honestly say that you recieved an unprotected copy of a program, you like it, and use it, I am sure that they would gladly accept your money direct. Then again, remember that the documentation and support you get for buying it outright can be invaluable as well. You like it? Buy it!

In my review of Paperback Writer last month, I stated that there was no way of removing the help menu at the top of the screen. I was wrong. The help menu can be removed by a <CONTROL> H. Tim.

Regardiny my cover editorial of issue number 32: I can keep no longer keep quiet about the advertisement that precipitated the comments I made about misleading advertising. subLOGIC, Inc., has advertised their Flight Simulator/JET scenery disks for many months. These advertisements feature a picture of a monitor showing the Golden Gate Bridge. The Golden Gate Bridge is NOT on the standard Scenery disks; it is on the STAR disks. subLOGIC continued the advertisements long after they knew that the Golden Gate Bridge would not be included, even allowing a most generous lag time for the magazines. I, and several readers, believe that subLOGIC's advertisements for the Scenery disks are intentionally, blatantly, misleading.

LETTERS

Dear Mr. Sickbert:

Midnite is still my favorite computer magazine, although I did subscribe to RUN when I saw that Jim Strasma was writing for it. This was definitely the correct move for me.

I am writing in response to your Meanderings in the April issue of Midnite. Several years ago I subscribed to Compute's Gazette for a period of two years. I became disenchanted with this publication for a number of reasons. I also subscribed to their Disk Program for year or two.

Within the past week I recieved a letter asking me to participate in what is called a National Opinion Poll, and to resubscribe to the Gazette. I enclose their letter in which they promise that, if I subscribe I will recieve a number of programs like SpeedScript, Frantic Fisherman, Mystery at Marple Manor, and so on. I already have these from the earlier issues to which I subscribed, and the disks which I purchased. A rapid reading of the letter indicates that I will recieve these programs, which is clearly not the case. Are they planning to publish an updated version of SpeedScript with their usual insufficient documentation?

In my opinion, this type of direct mail advertising verges very closely on dishonesty. You may wish to comment on such things in a future Meanderings column.

Cordially,
Dick Wick Hall
Binghamton, NY

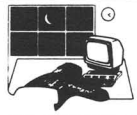
Dear Mr. Oldfield:

This in in reply to the notice that my subscription has expired.

I have been very pleased with some of the articles you have carried in the last 12 issues. I especially liked "A Summary of DOS Wedge Commands," by Jeff Eklund, which appeared in August 1985 (Issue 26). By far the most useful has been Robert Baker's "BASIC Variable Cross Reference" which appeared in the October 1985 (issue 28).

There have been some issues with interesting HARDWARE information concerning the C64 - for instance, Jan/Feb 1985 (issue 22) and September 1985 (issue 27). And, there were others - BUT NOT MANY!

You see, I am not greatly interested in software reviews; I don't have that much spare cash for one thing, and I had long ago purchased the few programs I needed...for example TOTL.TEXT 2.6 which I



am using now...so the article spread which attracted me to The PAPER some years back is still that which I am interested in now.

I wish to thank you and your contributors for the articles I have enjoyed to date. However, I feel it is now time for me to discontinue my subscription.

Sincerely
Robert P. Wilkins

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The following article was recieved through the public domain, via a number of online services. It is unfortunate that the author, Dr. June B. Moore, has passed away. If anybody can assist us in contacting the executors of her estate, that we might properly credit the author, please drop us a note.

Copyrighting Public Domain Programs

by

June B. Moore, JD
Member, California State Bar

There is concern about the copyright status of the programs provided by innovative and diligent members of the CP/M Users Group to the Group with the understanding, explicitly stated or otherwise, that the programs were contributed to the public domain.

The term "public domain" means, from a legal point of view, a program or other work that does not have copyright protection. The indiscriminate use of the word confuses the copyright issues. A work disclosed to a specific group of people for a limited purpose is not necessarily "public domain" software.

A new federal copyright law went into effect on January 1, 1978, which complicates the following discussion for that software written and/or contributed prior to that date. I will start with a discussion of the law as it applies now and to programs written after January 1, 1978. The new law is Title 17, U.S. Code. Any written material (including computer programs) fixed in a tangible form (written somewhere, i.e. a printout) is considered copyrighted without any additional action on the part of the author. Thus, it is not necessary that a copy of the program be deposited with the Copyright Office in Washington for the program to be protected as copyrighted.

A contribution of a program to the members of the public (CP/M Users Group) for their non-commercial use constitutes a license for that purpose and that purpose only. It does not destroy the programmers rights in the copyright to the program. HOWEVER, the government does not enforce the programmers rights. A copyright is a property right, just like the right you have in the house you own. If someone trespasses on your property, the cops may come and put the fellow in jail, but they will not stop him from doing it again nor will they procure compensation for any damage the intruder may have done to your property. You have to do that yourself by going to court. So it is with copyrights. In order to prevent anyone from selling your programs you must ask a court (federal) to stop him by an injunction and to give you damages for the injury he has done to you by selling the program.

Going to court requires that the program be registered with the Copyright Office in Washington,D.C. The fee is $10. The government will prosecute CRIMINAL copyright infringements, such as where someone simply copies (as in copying an audio or videotape) for profit, and when the government can show criminal intent (i.e., knowing violation of the law or fraud in the acts of the copier). This is not done very frequently except in the case of wholesale audio and video taping

pirates.

The copyright law has a concept known as a "derivative work." A derivative work is one which is based on a work already entitled to and protected by copyright. The original author of a work has the sole rights to "derivative" works derived from his work. He can authorize (license) others to prepare derivative works from his work, as in the case of a programmer of a Users Group program who says "If anyone fixes this for a DC Hayes MM-100, let me know."

I suspect that many of the programs contributed to the Group and their modifications fall within this category of license - that is, users have been allowed to prepare derivative works. However, the original author does not lose his original copyright! And all the derivative works made using the original are dependent on the continuation of the license except as to the parts added by the author of the derivative works. A simple explanation might help: A program provides for generating data showing ratios for sales to inventory turnovers (I know the example is silly), and the output is simply a bunch of numbers. The second programmer decides to enhance the program by turning the numbers into some kind of chart or graph. The program that generated the numbers is protected as to the original author. The output formatting ONLY is protected as a license derivative work to the second programmer.

The restriction placed on the programs in recent years limiting use to individuals on their personal machines and denying use of a program for commercial purposes is probably a valid restriction of the license granted in the CP/M Users Group Library. It constitutes fair warning to all who would lift the program and attempt to convert it to commercial purposes that such use is not licensed. It is not clear that such restriction applies automatically to earlier donations to the Group, unless there is something explicit in the documentation that accompanies the work itself when it is distributed.

In many instances, the programs donated prior to 1978 were not copyrighted (that is, contained no copyright notice and were not registered with the Copyright Office). The status of these programs is not clear, although a case can be made that they were initially distributed only to paid-up members of the CP/M Users Group. My documentation from the Users Group, which is undated but which is postmarked June 13, 1978, states, "The material [donations of programs] is received by the Group with the understanding that the contributor is authorized to make it available to hobbyists for their individual non-commercial use.....Members receiving material are free and encouraged to share it with other hobbyists for their individual non-commercial use." The membership information included a request for any member's knowledge of persons violating the non-commercial restriction on the programs distributed. A membership fee of $4 was charged for 1978 as a prerequisite to receiving material.

This limitation on the prospective use of a program obtained from the group indicates that the distribution was limited to non-commercial users. Pre-1/1/78 software that was not automatically copyrighted and did not contain a copyright notice could be protected only under state laws in existence at that time. The state laws varied considerably but generally the rule is that, if the work was not distributed willy-nilly to the public without restriction, the state law protected the work even if the federal law niceties were not complied with. The problem is whether the restrictions of the CP/M Users Group distribution were sufficient limitations on the publication of the program. Publication destroys a state law copyright, making the work free to all.

"Publication" here means making it available to the public at large, even though restrictions were placed on the initial disclosure of the program. That is something only the court or jury actually hearing the case can decide and may well turn on facts not available to me. For example, was any real effort made to prevent computer stores from distributing the programs to their customers who were not members of the Group? Were the non-commercial use limitations explained to those customers? To the computer stores?

One other concern has been expressed by some program authors, those authors who have desired not to have their programs modified but whose programs have nonetheless been modified. Referring to the discussion above about the limitations on use of contributed programs, if the limitation did not authorize anything but "use" of the program, then the modifications constituted "derivative" works that were not authorized. This, unfortunately, would be a very tricky thing to prove, and it would have to be proved - how did the parties understand the authorization to use the programs (i.e., was modification prevented but non-commercial use allowed?). If there was an implied license to modify (for example, because the program was included with other programs in which modifications were explicitly authorized), it might be very difficult to prove infringement under either the state or federal law, depending on which was applicable.

It should be clear from the above, however, that modifications of programs entitled to copyright protection are infringements if they are not authorized by the owner of the copyright in the original program. The problem is in the proof of lack of authorization.

Since January 1, 1978, all programs are protected by federal copyright laws without regard to copyright notice or registration with the Copyright Office and the state laws no longer apply. The federal law "pre-empted" the state laws on that date. But the federal rules apply across the board ONLY to works first "fixed" or "written" after that date. However, improvements or modifications in one's own program can qualify for federal copyright protection under the new law and perhaps those interested or affected by the problem should make formal registration of their works as well as including the copyright notice somewhere in the program.

It is obvious that most volunteer programmers do not have the finances or time, or inclination for that matter, to pursue a legal remedy in the courts. At the same time, they do not want the software they authored to be used by others for commercial gain without some control over its use.

I suggest that microcomputer software authors nation-wide form an organization similar to that of ASCAP or BMI, although on a smaller scale, to monitor improper uses of software donated to the hobbyist for personal use. Only through concentrating the efforts and power of all authors can real protection be obtained. Otherwise, the unscrupulous vendor is going to take his chances that the individual programmer will not or can not defend his copyright.

Such a group might be formed with the support of an active computer group like the NJ Amateur Computer Group or the Homebrew Computer Club in California. Or it could be established independently if there were sufficient interest and an organizer could be found to do the necessary paperwork, collect the dues needed to provide a war chest, and hire the attorneys and other persons necessary. It wouldn't have to be a full time job for anyone but it would have to be more than volunteer activity.

My suggestion appeared (anonymously) in an article in the July 1982 Microcomputing. I am not interested in doing it, although I would cooperate with any efforts along these lines with counsel and advice.

I suggest, however, that an early attack, which might include programmers for profit whose programs are slightly modified by fly-by-night vendors without compensation, will establish the principles necessary to deter future invasions of your copyrights.

June B. Moore, JD
Member, California State Bar

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ANOTHER UNDOCUMENTED EASY SCRIPT FEATURE!

I have used Easy Script on my 64 (and now my 128) for about three years and thought I knew about all of its features and quirks - including the secret musical score. But today I discovered, quite by accident, a real FEATURE that is undocumented and I never knew existed!

Let's face it, Easy Script is not a state of the art word processor. The copyright date is listed as 1982 but much of the code was written somewhat earlier. So I did not feel too bad when I had to use another, newer program to "print to disk".

When you "print to disk" with a word processor, you just don't save the text and formatting commands like you do with the programs' normal save or file command. Printing to the disk means that text is sent to the disk file in the identical way, character-for-character, that it would be sent to the printer. If the left margin is set at five, the program will send five spaces before the text of the normal line. If you have specified headers or footers, they will be sent to the disk file after or before page breaks (which are also sent as five or six carriage return characters in a row.) The beauty of this "printing to disk" thing is that you wind up with your text already formatted on the disk as it would be on paper. Any sequential file printing utility will be able to reproduce your document exactly as you intended without going through the logic of a word processor first. As one of the librarians of our local group, CUCUG, I use this feature quite a bit to format text for documentation files. I have been using Superscript 128 for this purpose and Easy Script for everything else concerning our library. This has been a tedious affair indeed.

To view a document on the screen with Easy Script the key sequence is F1 "O" (for output) and then "V" (for video.) Output to the printer is similar - just substitute the "V" with a "P" (for printer.) Well, my mind was on something else when I hit F1 "O" (for output) and then "S" (for screen.) Easy Script did not flinch - it asked "File Name?" By now I realized that I had made a mistake and remembered the proper command. It bugged me all day...what keys did I really press?...why did it ask for a filename?... what would happen if I gave it one?...would fire shoot out of the user port? So I went back and tried it. Lo and behold, the drive spun and Easy Script looked just like it does when it prints on the printer - but the printer was silent. Examining the disk file revealed that indeed, Easy Script had printed the document to the disk!

Tearing the manual apart shows no mention of the F1/O/S command and I have never seen any mention of it in any of the Commodore-type magazines. After over four years of a program being in use, surely someone else has discovered this little gem, or have they?

A few notes: This only works if you specify printer type "0" (CBM) at the initial screen (this is the default setting for Easy Script.) You will also notice that there is a lower-case "qo" before each line in your outputted text file. You can get rid of them by reloading the file, using the search/replace feature to delete them, and then resaving the formatted document with the normal (F)ile command. Oh, and never just hit RETURN when prompted for the file name; Easy Script will get real confused. Has anybody else found any other hidden features in this program? -Kevin Hisel

* * * * * * * * * * * * * * *

COMPACTOR-128 and UNCOMPACTOR-128

By Robert W. Baker

These are updated versions of earlier programs that appeared in several magazine articles and as part of my Commodore-64 Programmer's Library. Originally written for the Commodore PET and C64, I have made several improvements and updated the program to run on the C128 and properly handle BASIC 7.0 commands. These versions should only be run on the C128 in 128 mode.

COMPACTOR 128

The Compactor program reads a BASIC program from disk and creates a new, compacted copy. Compactor-128 deletes all REMarks, unnecessary spaces, and leading colons in a fashion similar to other utility programs.

This program, however, goes one step further. It combines program lines whenever possible to eliminate the link, line number, and line end flags normally associated with each BASIC program line. It makes a BASIC 7.0 program almost as small as possible, and most likely faster running.

I should point out, however, that there was no attempt to play with IF/THEN/ELSE statements to get further improvements, since this was beyond the scope of the program and would make the logic extremely complex.

While creating the original version of this program, I came across a few undocumented "quirks" of Commodore BASIC. Since many people like to experiment with the capabilities of having programs "write" programs on disk, this information may be of interest:

ZERO LENGTH LINES:

Normally, it is impossible to create a zero length line using the screen editor on any Commodore system. By zero length line, I mean a line with a link, line number, and end of line flag but no BASIC commands or text. If you were to type just a line number using the screen editor, you would actually delete a line instead of entering a zero length line.

When writing a BASIC program on disk as a data file, there is nothing to stop you from entering a zero length line. But if you want the program to run, you cannot have any zero length lines in the program. Most Commodore BASIC's cannot link the program lines correctly whenever there is a zero length line in the program.

LONG LINES:

At the other extreme, you cannot create a BASIC line that is longer than 255 bytes. Again, using the Commodore screen editor you could not create such a line. You are normally limited to a maximum of 78 bytes due to the line wrapping characteristics and at least a one digit line number.

When writing a BASIC program on disk as a data file, be careful not to create a

line greater than 255 bytes. Otherwise the program will usually not load from the disk. If it does load, the program will normally be unuseable.

When running the COMPACTOR program, you have some control over what size program lines will be created. The first input prompt will ask for the maximum line length to create. This must be a positive number between 1 and 255, the default is 255. When entering small numbers, be sure to use spaces to remove unwanted digits from the default number displayed.

After selecting the maximum line length, you're then asked the name of the BASIC program file to be compacted. The program must be on disk; program files cannot be read from tape as data files. If the file is not found or any disk errors are encountered, the error will be reported and the program will abort.

Next you're asked to enter the desired name of the compacted program to be created. This name cannot be the same as the original program name or any other file currently on the disk. If any file already exists with the same name, or if any other disk errors are encountered, the error will be reported and the program will abort.

COMPACTOR reads the program to be compacted as a sequential disk data file, and the file is read twice. The first pass checks for line numbers within the subject program that are the targets of: GOTO/GO TO, GOSUB, RUN, LIST, RESTORE, RESUME, TRAP, COLLISION, or IF...THEN/ELSE...(line#) statements. The first time a target line number is found it is saved into matrix TL. A check is also made for multiple target lines in ON..GOTO and ON..GOSUB statements.

As the first pass progresses, the current line number being processed in the input file is displayed on the screen. This helps give some indication of the scanning progress since it can be rather slow. By the way, when each target line number is found and added to the TL matrix, existing entries are moved to allow inserting the new entry in the proper position and keep all entries in numeric order. This helps speed up later processing.

During the second pass, each line is copied, deleted, or compacted as appropriate. Again, the current line number is displayed as each line of the original program is processed to let you know how the program is progressing. The rules followed by the COMPACTOR are:

Any leading colons and/or spaces on a line are deleted.

A line that has only REMarks is deleted if it is not a target line. The remark will be replaced with a single colon if the line is a target line and must be retained. This may produce a leading colon if the next line is not a target line and is combined with this line. The line cannot be reduced to a zero length line since BASIC cannot link a program correctly with a zero length line, as mentioned earlier.

If any line contains a GOTO/GO TO, RESUME, EXIT, MONITOR, RUN, END, NEW or IF...THEN/ELSE statement, another line cannot or should not be combined with this line. A flag is set in variable F whenever a line containing one of these tokens is found. This flag forces the current line to be written to disk and the next line to be read without combining the two. Any line combined after these BASIC commands might never be executed, thus the compacted program would not function properly.

Any spaces within a line, not enclosed in quotes, are deleted.

Any REMarks at the end of a BASIC line are deleted to the end of the line.

Anything within quotes is copied untouched. If an ending quote is missing from the line, one is added if another line could be combined with the current line.

When a colon is found within a BASIC line and not within quotes, the next non-space character is checked before copying the colon. If a REMark follows the colon, the colon and the rest of the line is deleted. Otherwise, the colon is copied and processing continues as normal.

At the end of each BASIC line, a check is made to see if the next line can be combined with this line. If the flag in the F variable was not set to indicate the line cannot be compacted, and the next line is not a target line, and the length of the next line would not exceed the limit if compacted, the lines are combined. When combining lines, the link and line number are discarded, a colon is written, and the next line is processed as part of the previous line.

If the next line cannot be combined with the current line, the currently constructed line is written on disk with the correct link to the next line. Compactor uses a line buffer to construct the entire line before it is actually written to disk. This allows creating the correct link value to write at the front of each line.

When the end of the program is found, the last line is written to disk along with the ending zero link and all files are properly closed.

As mentioned earlier, any BASIC program line cannot exceed 255 bytes in length. If it does, the program may not load from disk or it may be totally unuseable. Compactor can take full advantage of the longest possible BASIC lines since it reads the next entire program line and calculates whether or not there is enough room to concatenate it with the current line. Actually, it makes this calculation prior to removing unneeded characters from the next line so it usually doesn't quite get to the maximum limit.

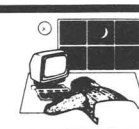
The maximum line length you specify at the start of the program can limit the compacted program's line size to some extent. It will keep Compactor from combining lines that would exceed the specified limit. However, any lines read that are already greater than the limit will be copied without combining with other lines. If you select a small limit, then most lines will be copied without combining lines but each line will be compacted by removing spaces and remarks or leading colons.

Keep in mind that the newly created compacted program may have lines that cannot be edited with the screen editor. Any program line that exceeds two screen lines on the Commodore-128 cannot be edited. The companion program, UNCOMPACTOR-128, allows you to uncompact program lines. This allows you to get program lines back to a reasonable size you can edit.

UNCOMPACTOR-128

The Uncompactor program is meant to be a companion to the Compactor-128 program. In short, this program reads a C128 Basic 7.0 program that was saved on disk and creates a new, uncompacted copy. Uncompactor takes any multi statement lines (statements separated by colons) and breaks them into separate program lines with new line numbers. Long lines created by Compactor-128 can now be edited and the program re-compacted.

When splitting multi statement lines, the new line numbers are created from the original line number with an increment of one between each new line generated. This procedure is followed for however many statements exist in the line, as long as



new line numbers can be generated without reaching the line number of the next line in the original program. If that point is reached, the remainder of the original line is then copied as part of the last line generated, with any appropriate separating colons.

The program must take into account certain Basic 7.0 tokens or keywords since they effect whether or not a particular line can be broken into separate lines. Thus, any data following a GOTO, GO TO, END, RUN, RETURN, REM, NEW, RESUME, EXIT or MONITOR token is copied unchanged to the end of the current program line. Also, once a quote is detected, the line must be copied until another quote or the end of the program line is reached. Special consideration must be given to IF/THEN/ELSE blocks with or without BEGIN and BEND statements, since they sometimes can be split.

When running the Uncompactor program, you have some control over what size program lines will be uncompacted. The first input prompt will ask for the minimum line length to try uncompacting. This should be a positive number between 1 and 255, but there is no check of the value entered. If you just hit return when prompted, the default is one, which will force every line to be uncompacted. Selecting a number like 20 will cause smaller lines to be left untouched while longer lines are uncompacted.

After selecting the minimum line length, you're then asked the name of the Basic program file to be uncompacted. The program must be on disk, program files cannot be read from tape as data files. If the file is not found or any disk errors are encountered, they will be reported and the program will terminate.

Next you're asked to enter the desired name of the uncompacted program to be created. This name cannot be the same as the original program name or any other file currently on the disk. If any file all ready exists with the same name or any disk errors are encountered, they will be reported and the program will terminate.

Uncompactor reads the program to be uncompacted as a sequential disk data file, and the file is only read once. As the original program is read, each line number is displayed on the screen. This helps give some indication of how things are progressing as Uncompactor runs, since it can be rather slow.

After copying the original program line number, the actual program line is read into the C matrix and the next link and line number are read. When the zero link is found at the end of the program, the next line number is forced to 64000. This number exceeds any possible Basic program line number, thus forcing proper handling of the last line of the program read.

Once the entire line has been read, it is scanned for colons and certain Basic tokens (as mentioned earlier) if the line is longer than the limit selected. If the line is shorter than the specified limit, it's copied untouched. If one of the special Basic tokens is found, the remainder of the line is copied untouched.

When a colon is found, the line is split if the current line number plus one is less than the next line number. The current line is written to disk with the proper link and ending flag. Single leading colons at the start of any line are retained, while spaces or extra colons following any colon in the middle of a line are deleted.

As mentioned earlier, lines containing IF-THEN-ELSE statements must be treated specially. If the line contains an IF statement without a BEGIN command, it cannot be split or the program logic would be changed. If a BEGIN command is found, then anything following on that line can

be split into separate lines.

If a BEND is found with an ELSE command immediately following it, that line cannot be split unless it contains a BEGIN command after the ELSE. Thus, lines containing an IF or ELSE cannot be split following those statements unless they contain a BEGIN command on the same line.

Whenever a quote is encountered, the remainder of the line is copied untouched until the next quote or end of line is found. Special handling of two byte tokens unique to Basic 7.0 on the C128 are also included. At the end of the program, a zero link is written to disk to properly terminate the new program and all files are closed.

Newly created, compacted or uncompacted programs are fully linked and ready to run programs. Both programs can be used on any standard Basic 7.0 program created on the C128 that do not contain imbedded assembly language routines.

As with any new utility, if entering from the printed listings be sure to save backup copies of all programs before running these utilities the first few times. To be extra safe, save your backups on separate disketts from the one being used to test the programs. Be extremely careful until the programs are fully tested and proven to work reliabily, to avoid destroying files or entire disks.

If you have any questions or problems with these or any other of my programs, you can reach me via email addressed to 'RBAKER' on Quantum Link. Download copies of these programs are also available in my program library on Quantum Link or you can send $5 for copies on disk.

[You may have noticed that we have, in this issue, deviated from our general practice of publishing generic programs that can be used on most, if not all, of Commodore's 8 bit machines. The two programs published in this issue will run only on the C128. It had to be. If anybody knows the Midnite Software Gazette and would like to write an article, please call or mail us a note and we will give you our pay rates. JO]

```
100 rem         compactor 128
110 rem      by: robert w. baker
120 rem 15 windsor dr, atco, nj 08004
130 :
140 goto 390
150 gosub 160: v1=v
160 get#5,c$: if ds=0 then v=asc(c$): return: else 1
110
170 if l$="" then return
180 la=la+len(l$)+3: a1=int(la/256): a2=la-(a1*256)
190 print#6,chr$(a2);chr$(a1);l$;chr$(0);: l$="": re
turn
200 p=0:gosub 150:ln=v1+(256*v):l1=v1:l2=v
210 print"[UP]";tab(10);ln;"          ": rem <-- 10
spaces
220 do:gosub 160:p=p+1:c(p)=v:loop until v=0:f=0:pl=
p:p=1:return
230 z=0: if n=0 then return
240 for x=xx to n-1: if ln>tl(x) then next x: n=0: r
eturn
250 if tl(x)=ln then z=1
260 xx=x:x=n:next x:return
270 l=-1:do:v=c(p):p=p+1:loop until v<>32
280 do while v>47 and v<58:if l<0 then l=0
290 l=(10*l)+v-48:v=c(p):p=p+1:loop
300 if v=46 then if l<0 then l=0: v=c(p):p=p+1
310 if l<0 then return:else y=n:if n=0 then 360
320 for x=0 to n-1:if l>tl(x) then next x:goto 350
330 if tl(x)=l then y=-1:else for y=n to x+1 step -1
:tl(y)=tl(y-1):next y:y=x
340 x=n:next x
350 if y<0 then return
360 tl(y)=l: n=n+1: if n<=mx then return
370 print"[DOWN]table overflow, too many target line
s!": goto 1120
380 print"[UP]";spc(20);"( done )[DOWN]": return
390 print"[CLR]       c o m p a c t o r - 1 2 8[DOWN
]"
400 print"this program will attempt to eliminate"
410 print"remarks and spaces, plus combine"
420 print"program lines whenever possible"
430 print"in a c128 basic program saved on disk,"
440 print"creating a smaller overall program.[DOWN]"
450 print"----------------------------------------[DO
WN]"
460 read mx,mt: dim tl(mx),t(mt),c(256)
470 read nt: for x=1 to nt: read t(x): next x
480 input"max line length to create:   255[LEFT][LEF
T][LEFT][LEFT][LEFT]";ml:if ml<1 or ml>255 then run
490 input"[DOWN] input filename:   .[LEFT][LEFT][LEF
T]";f1$: if f1$="." then end
500 close 5: open 5,8,5,"0:"+f1$+",p,r": if ds>0 the
n 1110
510 input"[DOWN]output filename:   .[LEFT][LEFT][LEF
T]";f2$: if f2$="." then close 5: end
520 close 6: open 6,8,6,"0:"+f2$+",p,w": if ds>0 the
n 1110
530 print"[DOWN]ok, starting first pass"
540 print"scanning program for referenced line#'s"
550 print"[DOWN]at line:" :gosub 150
560 gosub 150: if v+v1>0 then gosub 200:else 880
570 v=c(p):p=p+1
580 if v=32 then 570
590 if v=0 or v=143 then 560
600 if v<>34 then 640: rem skip inside quotes
610 v=c(p):p=p+1: if v=34 then 570
620 if v>0 then 610:else 560
630 rem scan standard tokens in tbl
640 z=0:for x=1 to nt: if v<=t(x) then z=t(x): x=nt
650 next x: if z=v then gosub 270: goto 580
660 if v<>145 then 720: rem 'on'
670 do:v=c(p):p=p+1: if v=0 then 560
680 loop until v<>137 and v<>141
690 gosub 270
700 if v=44 then 690
710 if v=32 then v=c(p):p=p+1: goto 700:else 590
720 if v<>203 then 750: rem 'go'
730 do:v=c(p):p=p+1:loop until v<>32:if v=64 then go
sub 270
740 goto 580
750 if v<>155 then 780:else gosub 270: rem 'list'
760 do until v<>32:v=c(p):p=p+1:loop:if v=171 then g
osub 270
770 goto 580
780 if v<>206 then 800: rem 2 byte tokens
790 v=c(p):p=p+1: if v=0 then 560:else 570
800 if v<>254 then 570
810 v=c(p):p=p+1: if v=0 then 560
820 if v<>23 then 570: rem 'collision'
830 v=c(p):p=p+1: if v=0 then 560: else if v=58 then
 570
840 if v=44 then gosub 270: goto 580
850 if v<>40 then 830: rem ignore inside ()
860 v=c(p):p=p+1: if v=0 then 560:else if v=58 then
570
870 if v<>41 then 860:else 830
880 gosub 380: xx=0: print"starting second pass, com
pacting lines[DOWN]"
890 close 5: open 5,8,5,"0:"+f1$+",p,r": if ds>0 the
n 1110
900 gosub 150: print#6,chr$(v1);chr$(v);: la=v1+(256
*v): l$=""
910 read nt: for x=1 to nt: read t(x): next x: print
"at line:"
920 gosub 150: if v+v1>0 then gosub 200: else 1130
930 do:v=c(p):p=p+1:loop until v<>32 and v<>58
940 l$=chr$(l1)+chr$(l2): if v<>0 and v<>143 then 97
0
950 gosub 230: if z=0 then 920:else l$=l$+":": goto
1070
960 l$=l$+chr$(v): do:v=c(p):p=p+1:loop until v<>32:
 if v=58 then 1050
970 z=0: for x=1 to nt: if v<=t(x) then z=t(x): x=nt
980 next x: if z=v then f=1: goto 960
990 if v=0 or v=143 then 1070
1000 if v=206 or v=254 then l$=l$+chr$(v):v=c(p):p=p
+1:goto 960
1010 if v<>34 then 960
1020 do:l$=l$+chr$(v): v=c(p): p=p+1: if v=34 then 9
60
1030 loop while v>0: if f=0 then l$=l$+chr$(34)
1040 goto 1070
1050 do:v=c(p):p=p+1:loop until v<>32 and v<>58
1060 if v<>0 and v<>143 then l$=l$+":": goto 970
1070 if f=1 then gosub 170: goto 920
1080 gosub 150: if v+v1>0 then gosub 200: else 1130
1090 if (len(l$)+pl+4)<=ml then gosub 230: if z=0 th
en 1050
1100 gosub 170: goto 930
1110 print"[DOWN][RVON]disk error": print ds$
1120 close 5: close 6: end
1130 gosub 170: print#6,chr$(0);chr$(0);: close 5: c
lose 6
1140 gosub 380: end
1150 rem ------------------------
1160 data 1000: rem max# referenced lines
1170 data 11:   rem max# tokens in tables

1180 data 8:    rem #standard tokens for scan
1190 rem goto,run,restore,gosub,then,else,resume,tra
p
1200 data 137,138,  140,   141, 167, 213,  214,  215
1210 data 11:   rem #standard tokens for compact
1220 rem  end,goto,run,if,return,new,else,go,resume,
exit,monitor
1230 data 128,137, 138,139, 142, 162,203,213, 214,
237, 250
```

```
100 rem u n c o m p a c t o r - 1 2 8
110 rem       by: robert w. baker
120 rem 15 windsor dr., atco, nj 08004
130 :
140 goto 200
150 gosub 160: v1=v
160 get#5,c$: if ds=0 then v=asc(c$):return:else 670
170 if l$="" then return
180 la=la+len(l$)+2: l1=int(la/256): l2=la-(l1*256)
190 print#6,chr$(l2);chr$(l1);l$;: l$="": return
200 print"[CLR][DOWN][DOWN]     u n c o m p a c t -
1 2 8[DOWN][DOWN]"
210 print"this program will break up lines in a"
220 print"c128 basic program saved on disk,"
230 print"creating more but smaller program lines.[D
OWN]"
240 read n: dim t(n),c(256):for y=1 to n:read t(y):n
ext y
250 print"minimum line length to try uncompacting":
input"   1[LEFT][LEFT][LEFT]";xl
260 input"[DOWN] input filename:    .[LEFT][LEFT][LEF
T]";f1$: if f1$="." then end
270 close 5: open 5,8,5,"0:"+f1$+",p,r": if ds>0 the
n 670
280 input"[DOWN]output filename:    .[LEFT][LEFT][LEF
T]";f2$: if f2$="." then close 5: end
290 close 6: open 6,8,6,"0:"+f2$+",p,w": if ds>0 the
n 670
300 print"[DOWN]ok, working on line# .....[DOWN][DOW
N]"
310 gosub 150: print#6,chr$(v1);c$;: la=v1+(256*v):
l$="": goto 350
320 gosub 170: if lk=0 then 680
330 ln=nl: print "[UP]";ln;"       ": l$=chr$(ll)+chr
$(lh)
340 x=0:do:gosub 160:x=x+1:c(x)=v:loop until v=0
350 gosub 150: lk=v+v1
360 if lk>0 then gosub 150:nl=v1+(256*v):ll=v1:lh=v:
else nl=64000
370 if l$="" then 320
380 v=x: x=1: if v<xl then 640
390 if c(x)<>58 then 450: rem colon
400 if x=1 then l$=l$+chr$(c(x)): goto 440
410 ln=ln+1: if ln>=nl then 640: rem don't split
420 h=int(ln/256): l=ln-(256*h): rem ok to split
430 l$=l$+chr$(0): gosub 170: l$=chr$(l)+chr$(h)
440 do:x=x+1:loop until c(x)<>32 and c(x)<>58
450 y=x: if c(x)<>139 then 510: rem 'if'
460 y=y+1: if c(y)=0 then 640
470 if c(y)=206 then y=y+1: goto 460
480 if c(y)=34 then do:y=y+1:loop until c(y)=0 or c(
y)=34:if c(y)=0 then 640
490 if c(y)<>254 then 460
500 y=y+1: if c(y)=24 then 580:else 460: rem begin
510 if c(x)<>254 then 600: rem bend
520 if c(x+1)=25 then l$=l$+chr$(c(x))+chr$(c(x+1)):
 x=x+2: y=x:else 610
530 do until c(y)<>32:y=y+1:loop:z=y:if c(y)<>58 the
n 640
540 do:y=y+1:loop until c(y)<>32 and c(y)<>58
550 if c(y)<>213 then x=z: goto 410: rem else
560 do:y=y+1:loop until c(y)<>32: if c(y)<>254 then
640
570 y=y+1: if c(y)<>24 then 640
580 for z=x to y: l$=l$+chr$(c(z)): next z: x=y
590 do:y=y+1:loop until c(x)<>32:if c(x)=58 then 410
:else 640
600 if c(x)<>206 then 620: rem 2-byte token
610 l$=l$+chr$(c(x))+chr$(c(x+1)): x=x+2: goto 390
620 z=0:for y=1 to n: if c(x)<=t(y) then z=t(y):y=n
630 next y: if c(x)<>z then 650
640 do:l$=l$+chr$(c(x)):x=x+1:loop untilc(x-1)=0:got
o 320
650 if c(x)=34 then do:l$=l$+chr$(c(x)):x=x+1:loop u
ntil c(x)=34 or c(x)=0
660 l$=l$+chr$(c(x)): if c(x)>0 then x=x+1: goto 390
:else 320
670 print"[DOWN][RVON]disk error": print ds$: close
5: close 6: end
680 print#6,chr$(0);chr$(0);: close 5: close 6
690 print"[UP]";spc(10);"( done )[DOWN]"
700 rem * tokens that don't allow split
710 rem * end,goto,run,return,rem,new
720 rem * go (to),resume,exit,monitor
730 data 10,128,137,138,142,143,162,203,214,237,250
```

AIRPLANE
AMIGA
ART
ARTICLES
BAKER
BASIC
BOB
BONEIWENTYEIGHT
BOOKS
BUSNESS
BUTTERFIELD
CBM
CHAMPAIGN
CLOCK
COBOL
COMAL
COMMODORE
COMPUTERS
COVER
ELIZABETH
FLORIDA
FORTH
GAMES
GAZETTE
ILLINOIS
IMMERS
JIM
KASPER
KIMBALL
LANGUAGE
LEWIS
MACHINES
MEANDERINGS
MICRO
MIDNITE
MIKE
ML
MOON
OLDFIELD
ONEIWENTYEIGHT
PACE
PAPER
PASCAL
PC
PERSONAL
PET
PRINTER
PROGRAMMING
PUZZLES
REVIEWS
RICHARD
ROBERT
SICKBERT
SIXTYFOUR
SOFTWARE
STOUT
SUNSHINE
SUPERPET
TIM
WOLTER
VIZAWRITE

A	F	X	L	T	V	O	F	I	M	I	J	E	J	Q	B	N	K	P	A	O	V	V	T	N	U	I	Y	C	X	E
Q	M	W	R	Z	A	C	C	P	G	X	B	L	X	D	R	A	M	Z	C	Z	A	G	W	G	I	C	E	F	Y	K
M	N	A	Q	T	I	F	R	U	I	F	C	S	R	I	W	E	K	E	E	Z	G	H	W	R	W	D	V	K	M	Q
F	O	W	S	S	R	I	T	H	Q	K	N	E	C	L	Y	Z	Z	E	S	P	C	B	O	O	K	S	J	P	I	S
R	H	G	A	H	N	A	S	K	H	S	V	H	O	L	R	Z	Q	R	R	T	J	L	O	R	U	P	L	U	I	M
G	C	B	V	T	S	P	C	M	Z	I	A	N	O	I	E	S	R	E	M	M	M	I	M	Y	E	R	W	Z	I	D
X	E	V	E	T	A	A	J	M	E	R	N	L	O	N	V	F	V	K	S	R	O	N	I	B	S	O	I	Z	R	Q
J	K	R	F	R	G	S	L	W	D	N	I	V	U	O	S	P	I	I	I	P	K	P	T	T	A	G	S	L	A	Z
T	L	C	Y	E	I	C	S	Y	Z	P	U	J	E	I	I	A	W	C	A	M	W	X	H	G	R	R	N	E	N	E
W	X	L	U	B	M	A	J	O	D	B	M	R	L	S	V	E	L	P	R	R	B	G	I	M	T	A	F	S	F	R
M	T	V	R	O	A	L	J	L	P	L	Q	I	I	K	L	O	E	Y	I	G	I	A	B	P	I	M	L	I	L	A
F	M	A	U	R	P	O	Z	R	X	F	V	P	Z	R	C	R	T	P	A	E	D	H	L	V	C	A	A	I	L	W
C	O	V	E	R	O	L	D	F	I	E	L	D	A	K	G	R	F	W	Y	V	S	B	U	L	L	M	N	C	F	T
V	O	U	R	U	S	R	Q	M	W	M	H	M	B	K	X	W	B	T	V	G	J	R	B	N	E	I	O	O	G	F
Q	N	B	U	T	T	E	R	F	I	E	L	D	E	N	X	U	N	E	N	B	E	O	F	N	S	N	S	M	O	O
J	Z	M	M	B	M	J	J	D	G	V	U	R	T	W	I	E	Z	I	H	T	B	S	A	P	O	G	R	M	E	S
X	Y	K	G	A	U	S	N	P	M	A	D	A	H	W	W	Y	R	I	L	B	R	L	T	S	K	C	E	O	L	Y
Z	M	S	Y	V	C	I	E	D	F	U	Z	Y	K	T	T	E	T	O	V	E	P	X	E	A	P	V	P	D	C	D
A	V	G	E	L	T	H	Z	N	Z	K	V	E	E	K	D	A	W	C	T	R	B	D	P	F	S	P	X	O	A	R
B	S	G	B	E	T	T	I	E	I	L	A	N	T	N	Q	A	F	U	I	R	A	N	X	C	O	I	Z	R	O	N
E	S	U	Y	S	P	I	N	N	R	H	O	F	A	T	W	L	P	A	B	M	U	A	X	K	K	R	U	E	N	Q
S	I	H	P	L	P	S	Q	W	E	B	S	E	O	T	E	M	O	S	E	C	E	J	D	H	E	H	T	Z	I	K
N	R	S	P	E	G	U	E	O	G	S	M	N	O	Z	O	Q	T	B	H	Z	W	G	G	I	S	O	Q	H	X	A
A	B	U	T	A	R	K	D	M	R	Y	M	R	U	C	T	R	K	A	O	V	E	E	A	S	R	Y	T	J	J	S
X	D	K	O	O	C	P	Y	B	A	C	H	I	N	S	E	U	M	N	K	C	Z	G	E	U	V	O	O	S	U	P
H	F	J	K	F	U	E	E	H	J	G	I	L	J	B	J	P	R	U	X	C	N	N	L	G	G	S	L	G	K	E
M	A	K	B	U	Y	T	L	T	I	H	X	M	K	X	A	E	U	Q	G	K	I	I	L	W	U	N	P	F	W	R
S	C	O	M	A	L	T	H	U	D	D	I	C	U	I	J	N	M	B	C	S	T	L	Y	I	H	J	A	G	N	A
A	E	V	H	E	Y	E	X	J	H	R	I	X	G	K	C	G	K	U	U	P	C	H	G	I	W	B	Q	L	H	K
F	K	D	Z	I	A	R	W	I	O	S	Y	N	F	R	K	Q	B	B	P	M	S	E	F	J	Z	I	V	T	X	B
X	H	F	B	U	G	W	U	V	S	F	R	G	P	O	N	E	T	W	E	N	T	Y	E	I	G	H	T	A	O	G

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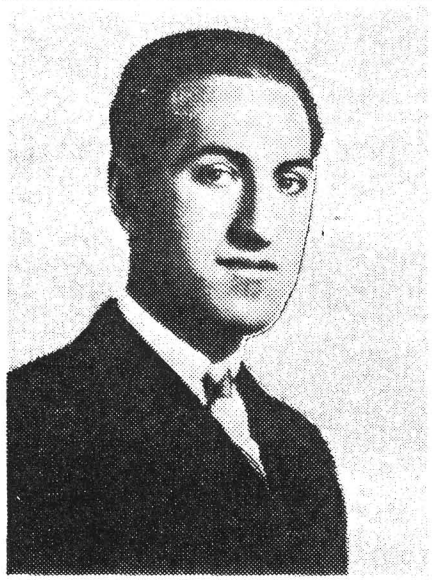

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The **Midnite Software Gazette** was born to provide a forum for reviews of hardware and software for Commodore computers. Before becoming a commercial magazine, **Midnite** was published by Jim Strasma and myself as the newsletter for the Central Illinois Pet User's Group. Since that time, over seven years ago, we have published over 1600 reviews. And we are still publishing the same hard hitting reviews that the you need when looking for hardware and software.

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